Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended): A (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β -D or β -L) of the formula:

wherein

Base is a purine or pyrimidine base;

X is O, S, CH₂, Se, NH, N-alkyl, CHW (R, S, or racemic), C(W)₂, wherein W is F, Cl, Br, or I;

R³ and R⁷ are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug, H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered *in vivo* is capable of providing a compound wherein R³ is H or phosphate; R² is H or phosphate; R³ and R² or R⁷ can also be linked with cyclic phosphate group;

R² and R² are independently H, C₁₋₄ alkyl, C₁₋₄ alkenyl, C₁₋₄ alkynyl, vinyl, N₃, CN, Cl, Br, F, I, NO₂ C(O)O(C₁₋₄ alkyl), C(O)O(C₁₋₄ alkyl), C(O)O(C₁₋₄

alkynyl), $C(O)O(C_{1:4}$ alkenyl), $O(C_{1:4}$ acyl), $O(C_{1:4}$ alkyl), $O(C_{1:4}$ alkenyl), $S(C_{1-4} \text{ acyl})$, $S(C_{1-4} \text{ alkyl})$, $S(C_{1-4} \text{ alkynyl})$, $S(C_{1-4} \text{ alkenyl})$, $SO(C_{1-4} \text{ acyl})$, $SO(C_{4-4} \text{ alkyl})$, $SO(C_{4-4} \text{ alkynyl})$, $SO(C_{4-4} \text{ alkenyl})$, $SO_2(C_{4-4} \text{ acyl})$, $SO_2(C_{1-4} \text{ alkvi})$, $SO_2(C_{1-4} \text{ alkvnvi})$, $SO_2(C_{1-4} \text{ alkenvi})$, $O_3S(C_{1-4} \text{ acvi})$, $O_3S(C_{1,4} \text{ alkyl})$, $O_3S(C_{1,4} \text{ alkenyl})$, NH_2 , $NH(C_{1,4} \text{ alkyl})$, $NH(C_{1,4} \text{ alkenyl})$, NH(C_{1-4} alkynyl), NH(C_{1-4} acyl), N(C_{1-4} alkyl)₂, N(C_{1-18} acyl)₂, wherein alkyl, alkynyl, alkenyl and vinyl are optimally optionally substituted by N₃, CN, one to three halogen (Cl. Br, F, I), NO₂ C(O)O(C_{1,4} alkyl), C(O)O(C₁, 4 alkyl), $C(O)O(C_{3-4}$ alkynyl), $C(O)O(C_{3-4}$ alkenyl), $O(C_{4-4}$ acyl), $O(C_{3-4}$ alkyl), O(C₁₋₄ alkenyl), S(C₁₋₄ acyl), S(C₁₋₄ alkyl), S(C₁₋₄ alkynyl), S(C₁₋₄ alkenyl), SO(C₁₋₄ acyl), SO(C₁₋₄ alkyl), SO(C₁₋₄ alkynyl), SO(C₁₋₄ alkenyl), SO₂(C₁₋₄ acyl), SO₂(C₁₋₄ alkyl), SO₂(C₁₋₄ alkynyl), SO₂(C₁₋₄ alkenyl), O₃S(C₁₋₄ acvl), O₃S(C₁₋₄ alkyl), O₃S(C₁₋₄ alkenyl), NH₂, NH(C₁₋₄ alkyl), NH(C₁₋₄ alkenyl), NH(C₁₋₄ alkynyl), NH(C₁₋₄ acyl), N(C₁₋₄ alkyl)₂, $N(C_{1-4} \text{ acyl})_2$, OR^7 ; R^2 and R^2 can be linked together to form a vinvl optionally substituted by one or two of Na, CN, Cl. Br. F. I. NOs; and R⁶ is an optionally substituted alkyl (including lower alkyl), cyano (CN), CH₃, OCH₃, OCH₂CH₃, hydroxy methyl (CH₂OH), fluoromethyl (CH₂F), azido (N₂), CHCN, CH₂N₃, CH₂NH₂, CH₂NHCH₃, CH₂N(CH₃)₂, alkyne (optionally substituted), or fluoro;

or its pharmaceutically acceptable salt or prodrug thereof.

Claim 2 (Currently Amended): The (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D or β-L) of claim 1 or its pharmaceutically acceptable salt or prodrug thereof, wherein the Base is represented by the following formula selected from the group-consisting of:

$$\begin{array}{c|c}
R^4 \\
\hline
N & N \\
N & N \\
\hline
N & N \\
\hline
N & N \\
N & N \\
\hline
N & N \\
N & N \\
\hline
N & N \\
N & N \\
\hline
N & N \\
N & N \\$$

wherein

Yis Nor CH.

R³[[,]] and R⁴ and R⁸-are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₁-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₆, such as CH₃-CH₂-CH₂F; lower alkenyl of C₂-C₆, such as CH=CH₂; halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆, such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆, such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆, such as CH₂-CH₂-halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₁-C₆, such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, lower hydroxyalkyl, CO₂H, CO₂R', CONH₂, CONHR', CONR'₂, CH=CHCO₂H, CH=CHCO₂R'; and,

R' is an optionally substituted alkyl of C₁-C_{12a} (particularly-when the alkyl-is an amino-acid-residue), cycloalkyl, optionally substituted alkynyl of C₂-C₆, optionally substituted lower alkenyl of C₂-C₆, or optionally substituted acyl or, in the case of NHR' and COR', R' can be an amino acid residue.

Claim 3 (Currently Amended): The (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D) of claim 1 or its pharmaceutically acceptable salt or prodrug thereof,

wherein the Base is represented by the following formula selected from the group consisting of (a) or (b):

$$\begin{array}{c|c}
R^4 \\
\hline
N \\
\hline
N \\
N \\
R^5
\end{array}$$

$$\begin{array}{c}
R^3 \\
\hline
N \\
\hline
N \\
\hline
\end{array}$$

$$\begin{array}{c}
R^4 \\
\hline
N \\
\hline
\end{array}$$

$$\begin{array}{c}
R^3 \\
\hline
N \\
\hline
\end{array}$$

$$\begin{array}{c}
R^4 \\
\hline
\end{array}$$

and wherein R^1 is $H,\,R^2$ is OH, R^{2^*} is $H,\,R^3$ is H, and R^4 is NH_2 or OH,...3 and R^4 is NH_{2^*}

Claim 4 (Currently Amended): A (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β -D or β -L) of the formula:

wherein

the Base is represented by the following formula selected from the group consisting of

$$\begin{array}{c|c}
R^4 \\
\hline
N \\
\hline
N \\
\hline
N \\
R^5
\end{array}$$

$$\begin{array}{c}
R^3 \\
\hline
N \\
\hline
N \\
\hline
O \\
\hline
\end{array}$$

Yis Nor CH:

R¹ and R⁷ are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug, H-

phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered *in vivo* is capable of providing a compound wherein R¹ is H or phosphate; R² is H or phosphate; R¹ and R² or R⁷ can also be linked with cyclic phosphate group;

 R^2 and R^2 are independently H, $C_{1\text{--}4}$ alkyl, $C_{1\text{--}4}$ alkenyl, $C_{1\text{--}4}$ alkynyl, vinyl, $N_{3\text{--}}$ CN, Cl, Br, F, I, NO₂, C(O)O(C₁₋₄ alkyl), C(O)O(C₁₋₄ alkyl), C(O)O(C₁₋₄ alkynyl), $C(O)O(C_{1-4}$ alkenyl), $O(C_{1-4}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{1-4}$ alkenyl), $S(C_{1:4} \text{ acyl})$, $S(C_{1:4} \text{ alkyl})$, $S(C_{1:4} \text{ alkynyl})$, $S(C_{1:4} \text{ alkenyl})$, $SO(C_{1:4} \text{ acyl})$, $SO(C_{3-4} \text{ alkyl})$, $SO(C_{3-4} \text{ alkynyl})$, $SO(C_{3-4} \text{ alkenyl})$, $SO_2(C_{3-4} \text{ acyl})$, $SO_2(C_{1-4} \text{ alkyl})$, $SO_2(C_{3-4} \text{ alkynyl})$, $SO_2(C_{3-4} \text{ alkenyl})$, $O_3S(C_{3-4} \text{ acyl})$, $O_3S(C_{1,4} \text{ alkyl})$, $O_3S(C_{3,4} \text{ alkenyl})$, NH_2 , $NH(C_{1,4} \text{ alkyl})$, $NH(C_{1,4} \text{ alkenyl})$, $NH(C_{1:4} \text{ alkynyl})$, $NH(C_{1:4} \text{ acyl})$, $N(C_{1:4} \text{ alkyl})_2$, $N(C_{1:48} \text{ acyl})_2$, wherein alkyl, alkynyl, alkenyl and vinyl are optimally optionally substituted by N₃, CN, one to three halogen (Cl. Br, F. I), NO₂ C(O)O(C₁₋₄ alkyl), C(O)O(C₁. a alkyl), C(O)O(C1-a alkynyl), C(O)O(C1-a alkenyl), O(C1-a acyl), O(C1-a alkyl), $O(C_{1-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{1-4}$ alkynyl), $S(C_{1-4}$ alkenyl), SO(C₁₋₄ acyl), SO(C₁₋₄ alkyl), SO(C₁₋₄ alkynyl), SO(C₁₋₄ alkenyl), SO₂(C₁₋₄ acyl), SO₂(C₁₋₄ alkyl), SO₂(C₁₋₄ alkynyl), SO₂(C₁₋₄ alkenyl), $O_3S(C_{1-4} \text{ acyl})$, $O_3S(C_{1-4} \text{ alkyl})$, $O_3S(C_{1-4} \text{ alkenyl})$, NH_2 , $NH(C_{1-4} \text{ alkenyl})$ alkyl), NH(C₁₋₄ alkenyl), NH(C₁₋₄ alkynyl), NH(C₁₋₄ acyl), N(C₁₋₄ alkyl)₂, $N(C_{1,4} \text{ acv} I)_2$, OR^7 ; R^2 and R^2 can be linked together to form a vinvl optionally substituted by one or two of N₃, CN, Cl. Br. F. I. NO₂:

R³[[,]] and R⁴ and R⁵-are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₁-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₆, such as CF₂ and CH₂CH₂F, lower alkenyl of C₂-C₆, such as CH-CH₂, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆, such as CH-CHCl, CH-CHBr and CH-CHI, lower alkynyl of C₂-C₆, such as CH-CHCl, CH-CHBr and CH-CHI, lower alkynyl of C₂-C₆, such as CH₂CH₂halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₁-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, lower hydroxyalkyl, CO₂H, CO₂R', CONH₂, CONHR', CONR'₂, CH-CHCO₂H, CH-CHCO₂R';

R' is an optionally substituted alkyl of C₁-C₁₂ (particularly-when-the-alkyl-is-an amino-acid-residue); cycloalkyl, optionally substituted alkynyl of C₂-C₆, optionally substituted lower alkenyl of C₂-C₆, or optionally substituted acyl or, in the case of NHR' and COR', R' can be an amino acid residue;

R⁶ is an optionally substituted alkyl (including lower alkyl), cyano (CN), CH₃,
OCH₃, OCH₂CH₃, hydroxy methyl (CH₂OH), fluoromethyl (CH₂F), azido
(N₃), CHCN, CH₂N₃, CH₂NH₂, CH₂NHCH₃, CH₂N(CH₃)₂, alkyne
(optionally substituted), or fluoro;

or its pharmaceutically acceptable salt or prodrug thereof.

Claim 5 (Currently Amended): The (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D) of claim 4 or its pharmaceutically acceptable salt or prodrug thereof, wherein

the Base is represented by the following formula

and R³ is H, R² is OH, R² is H, R³ is H, R⁴ is NH₂ or OH, and R⁶ is H.

Claim 6 (Currently Amended): A (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β -D or β -L) or its pharmaceutically acceptable salt or prodrug thereof of the structure:

wherein the Base is a purine or pyrimidine base;

X is O, S, CH₂, Se, NH, N-alkyl, CHW (R, S, or racemic), C(W)₂, wherein W is F, Cl, Br, or I; and,

R¹ and R⁷ are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug, H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid, a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered *in vivo* is capable of providing a compound wherein R¹ or R⁷ is independently H or phosphate; R¹ and R⁷ can also be linked with cyclic phosphate group.

Claim 7 (Currently Amended): The (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β -D or β -L) of claim 6 or its pharmaceutically acceptable salt or prodrug thereof,

wherein the Base is represented by the following formula selected from the group consisting of:

$$\begin{array}{c|c}
R^4 \\
\hline
N & N \\
\hline
N & O \\
\hline
(b)$$

Yis Nor CH;

R³[[,]] and R⁴ and R⁵-are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₁-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₆, such as CH=CH₂, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆, such as CH=CHCl₇ CH=CHBr and CH=CHI₇ lower alkynyl of C₂-C₆, such as CH=CHCl₇ CH=CHBr and CH=CHI₇ lower alkynyl of C₂-C₆, such as CH=CHCl₇ CH=CHBr and CH=CHI₇ lower alkynyl of C₂-C₆, lower alkoxy of C₁-C₆, such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, lower hydroxyalkyl, CO₂H, CO₂R', CONH₂, CONHR', CONR'₂, CH=CHCO₂H, CH=CHCO₃R'; and,

R' is an optionally substituted alkyl of C₁-C₁₂ (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C₂-C₆, optionally substituted lower alkenyl of C₂-C₆, or optionally substituted acyl or, in the case of NHR' and COR', R' can be an amino acid residue.

Claim 8 (Currently Amended): The (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β -D) of claim 6 or its pharmaceutically acceptable salt or prodrug thereof,

wherein the Base is represented by the following formula selected from the group consisting of (a) or (b):

and wherein R^3 and R^7 are H, R^3 is H, and R^4 is NH_2 or $OH_{a,p}$ and R^6 is NH_2 .

Claim 9 (Currently Amended): A (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β -D or β -L) of the formula:

$$\mathbb{R}^{10}$$
 $\mathbb{A}^{\mathbb{R}^{2}}$ $\mathbb{A}^{\mathbb{R}^{2}}$

wherein the Base is

X is O, S, CH₂, Se, NH, N-alkyl, CHW (R, S, or racemic), C(W)₂, wherein W is F, Cl, Br, or I;

R¹ and R⁷ are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug, H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and

benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered *in vivo* is capable of providing a compound wherein R¹ is H or phosphate; R² is H or phosphate; R¹ and R² or R² can also be linked with cyclic phosphate group;

R2 and R2 are independently H, C1-4 alkyl, C1-4 alkenyl, C1-4 alkynyl, vinyl, N3-CN, Cl, Br, F, I, NO2, C(O)O(C1-4 alkyl), C(O)O(C1-4 alkyl), C(O)O(C1-4 alkynyl), $C(O)O(C_{1:4}$ alkenyl), $O(C_{1:4}$ acyl), $O(C_{1:4}$ alkyl), $O(C_{1:4}$ alkenyl), $S(C_{1:4} \text{ acyl})$, $S(C_{1:4} \text{ alkyl})$, $S(C_{1:4} \text{ alkynyl})$, $S(C_{1:4} \text{ alkenyl})$, $SO(C_{1:4} \text{ acyl})$, $SO(C_{3-4} \text{ alkyl})$, $SO(C_{3-4} \text{ alkynyl})$, $SO(C_{3-4} \text{ alkenyl})$, $SO_2(C_{3-4} \text{ acyl})$, $SO_2(C_{1-4} \text{ alkyl})$, $SO_2(C_{1-4} \text{ alkynyl})$, $SO_2(C_{1-4} \text{ alkenyl})$, $O_3S(C_{1-4} \text{ acyl})$, $O_3S(C_{1-4} \text{ alkyl})$, $O_3S(C_{1-4} \text{ alkenyl})$, NH_2 , $NH(C_{1-4} \text{ alkyl})$, $NH(C_{1-4} \text{ alkenyl})$, $NH(C_{1-4} \text{ alkynyl})$, $NH(C_{1-4} \text{ acyl})$, $N(C_{1-4} \text{ alkyl})_2$, $N(C_{1-18} \text{ acyl})_2$, wherein alkyl, alkynyl, alkenyl and vinyl are optimally optionally substituted by N₃, CN, one to three halogen (Cl, Br, F, I), NO₂ C(O)O(C₁₋₄ alkyl), C(O)O(C₁. a alkyl), C(O)O(C₁₋₄ alkynyl), C(O)O(C₁₋₄ alkenyl), O(C₁₋₄ acyl), O(C₁₋₄ alkyl), O(C1-4 alkenyl), S(C1-4 acyl), S(C1-4 alkyl), S(C1-4 alkynyl), S(C1-4 alkenyl), SO(C₁₋₄ acyl), SO(C₁₋₄ alkyl), SO(C₁₋₄ alkynyl), SO(C₁₋₄ alkenyl), SO₂(C_{1.4} acyl), SO₂(C_{1.4} alkyl), SO₂(C_{1.4} alkynyl), SO₂(C_{1.4} alkenyl), O₂S(C₁₋₄ acyl), O₃S(C₁₋₄ alkyl), O₃S(C₁₋₄ alkenyl), NH₂, NH(C₁₋₄ alkv1), NH(C1-4 alkeny1), NH(C1-4 alkyny1), NH(C1-4 acy1), N(C1-4 alky1)2, $N(C_{1-4} \text{ acyl})_2$, OR^7 ; R^2 and R^2 can be linked together to form a vinyl optionally substituted by one or two of N₃, CN, Cl. Br, F. I, NO₂;

R³ and R⁴ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₁-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₆, such as CF₃ and CH₂CH₂F₇-lower alkenyl of C₂-C₆, such as CH=CH₂, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆, such as CH=CHCl₂-CH=CHBr and CH=CHI₂-lower alkynyl of C₂-C₆, such as

C=CH₂-halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₁-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, CO₂H, CO₂R', CONH₂, CONHR', CONR'₂, CH=CHCO₂H, CH=CHCO₂R'; and,

R' is an optionally substituted alkyl of C₁-C_{12x} (particularly when the alkyl-is an amino acid-residue), cycloalkyl, optionally substituted alkynyl of C₂-C₆, optionally substituted lower alkenyl of C₂-C₆, or optionally substituted acyl or, in the case of NHR' and COR', R' can be an amino acid residue;

R⁶ is an optionally substituted alkyl (including lower alkyl), cyano (CN), CH₃, OCH₃, OCH₂CH₃, hydroxy methyl (CH₂OH), fluoromethyl (CH₂F), azido (N₃), CHCN, CH₂N₃, CH₂NH₂, CH₂NHCH₃, CH₂N(CH₃)₂, alkyne (optionally substituted), or fluoro;

or its pharmaceutically acceptable salt or prodrug thereof.

Claim 10 (Currently Amended): A (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D or β-L) of the formula

wherein the Base is

R¹ and R⁷ are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug, H-

phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered *in vivo* is capable of providing a compound wherein R¹ is H or phosphate; R² is H or phosphate; R³ and R² or R⁷ can also be linked with cyclic phosphate group;

R³ and R³ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₁-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₆ such as CF₃ and CH₂CH₂F₇-lower alkenyl of C₂-C₆ such as CH=CH₃, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₁-C₆ such as CH₂OH-and-CH₂CH₂OH₇ halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, lower hydroxyalkyl, CO₂H, CO₂R', CONH₂, CONHR', CONR'₂, CH=CHCO₂H, CH=CHCO₂R';

R' is an optionally substituted alkyl of C₁-C₁₂ (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C₂-C₆, optionally substituted lower alkenyl of C₂-C₆, or optionally substituted acyl or, in the case of NHR' and COR', R' can be an amino acid residue;

or its pharmaceutically acceptable salt or prodrug thereof.

Claim 11 (Original): A (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β -D) or its pharmaceutically acceptable salt or prodrug thereof of the formula:

Claims 12-15 (Canceled).

Claim 16 (Currently Amended): A pharmaceutical composition comprising the nucleoside of claim 1 or its pharmaceutically acceptable salt or prodrug and a pharmaceutically acceptable carrier. a (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl-nucleoside (β-D-or β-L) of the formula:

wherein

Base is a purine or pyrimidine base;

X is O, S, CH₃, Se, NH, N-alkyl, CHW (R, S, or racemic), C(W)₂, wherein W is F, Cl. Br. or I;

R³ and R² are independently H₁ phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug. H₂ phosphonate, including stabilized H₂ phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid.

including a phospholipid, an t. or D-amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R⁴ is H or phosphate; R² is H or phosphate; R³ and R² or R² can also be linked with cyclic phosphate group;

R2 and R2 are independently H, C1.4 alkyl, C1.4 alkenyl, C1.4 alkynyl, vinyl, N35 CN, Cl. Br, F, I, NO₂, C(O)O(C_{4,4} alkyl), C(O)O(C_{4,4} alkyl), C(O)O(C_{4,4} alkvnyl), $C(O)O(C_{4-4}$ alkenyl), $O(C_{3-4}$ acyl), $O(C_{4-4}$ alkvl), $O(C_{3-4}$ alkenyl), $S(C_{1,2}|acv1)$, $S(C_{1,2}|alkv1)$, $S(C_{1,2}|alkvnv1)$, $S(C_{1,2}|alkenv1)$, $SO(C_{1,2}|acv1)$, SO(Calaralkyt); SO(Calaralkynyt); SO(Calaralkenyt); SO(Calaralkynyt); SO₂(C_{1,4} alkvl), SO₂(C_{1,4} alkvnvl), SO₂(C_{1,4} alkenvl), O₂S(C_{1,4} acvl), OaS(CL_calkyl), OaS(CL_calkenyl), NH2, NH(CL_calkyl), NH(CL_calkenyl), NH(C_{L-1} alkynyl), NH(C₁₋₁ acyl), N(C_{L-1} alkyl)₂, N(C_{L-1} acyl)₂, wherein alkyl, alkynyl, alkenyl and vinyl are optinally substituted by Na, CN, one to three halogen (Cl. Br. F. T), NO₂, C(O)O(C₄, alkyl), C(O)O(C₄, alkyl), $C(O)O(C_{k-k}alkvnvl)$; $C(O)O(C_{k-k}alkenvl)$; $O(C_{k-k}aevl)$; $O(C_{k-k}alkvl)$; O(C_aalkenyl), S(C_aacyl), S(C_aalkyl), S(C_aalkynyl), S(C_aa alkenvl)_SO(C1_aaevi)_SO(C1_aalkvl)_SO(C1_aalkvnvl)_SO(C1_a alkenyl), SO₂(C₄₋₄-acyl), SO₂(C₄₋₄-alkyl), SO₂(C₄₋₄-alkynyl), SO₂(C₄₋₄ alkenvl), O.S(C., acvl), O.S(C., alkvl), O.S(C., alkenvl), NH., NH(C., a alkyl); NH(C1.4 alkenyl); NH(C1.4 alkynyl); NH(C1.4 acyl); N(C1.4 alkyl);: $N(C_{1-\epsilon}acyl)_2$; OR^3 ; R^2 and R^3 can be linked together to form a vinyl optionally substituted by one or two of Na, CN, Cl. Br. F. I. NO2:

R⁶ is an optionally substituted alkyl (including lower alkyl), cyano (CN), CH₃;

OCH₄, OCH₂CH₄, hydroxy methyl (CH₂OH), fluoromethyl (CH₂F), azido
(N₂), CHCN, CH₂N₃, CH₂NH₂, CH₂NHCH₃, CH₂N(CH₃)₂, alkyne
(optionally substituted), or fluoro;

or its pharmaceutically acceptable salt or prodrug thereof, a pharmaceutically acceptable carrier.

Claim 17 (Currently Amended): A pharmaceutical composition comprising the nucleoside of claim 2 or its pharmaceutically acceptable salt or prodrug and a pharmaceutically acceptable carrier.

The composition of claim 16, wherein Base is selected from the group consisting of

wherein

Yis Nor CH.

R*, R* and R* are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR', lower alkyl of C₁-C₂, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₄ such as CF₂ and CH₂CH₂F, lower alkenyl of C₂-C₄ such as CH=CH₂, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₄ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₄ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₄, lower alkoxy of C₃-C₄ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₅ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₆, CO₂H, CO₂R', CONH₂, CONHR', CONR'₂, CONR'₂, CONH₂, CONHR', CONR'₂, CH=CHCO₂H, CH=CHCO₂R', and,

R' is an optionally substituted alkyl of C_4 - C_{42} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_6 ; optionally substituted lower alkenyl of C_2 - C_6 ; or optionally substituted acyl.

Claim 18 (Currently Amended): A pharmaceutical composition comprising the nucleoside of claim 3 or its pharmaceutically acceptable salt or prodrug and a pharmaceutically acceptable carrier.

The composition of claim 16, wherein

Base is selected from the group consisting of (a) or (b):

and wherein R^4 is H, R^2 is OH, R^2 is H, R^3 is H, and R^4 is NH_2 or OH, and R^3 is NH_2 .

Claim 19 (Currently Amended): A pharmaceutical composition comprising the nucleoside of claim 4 or its pharmaceutically acceptable salt or prodrug and a pharmaceutically acceptable carrier. a (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D or β-L) of the formula:

wherein

Base is selected from the group consisting of

Yis Nor CH;

R* and R* are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R* is H or phosphate; R* is H or phosphate; R* and R* or R* can also be linked with cyclic phosphate group;

R² and R³ are independently H, C₁₋₄ alkyl, C₁₋₄ alkenyl, C₁₋₄ alkynyl, vinyl, N₃; CN: CL Br. F. L NO. C(O)O(CL alkyl): C(O)O(CL alkyl): C(O)O(CL alkynyl), C(O)O(C), alkenyl), O(C), acyl), O(C), alkyl), O(C), alkenyl), $S(C_{1,4} \text{ acvi})$, $S(C_{1,4} \text{ alkvi})$, $S(C_{1,4} \text{ alkvivi})$, $S(C_{1,4} \text{ alkenvi})$, $SO(C_{1,4} \text{ acvi})$, SO(Ciaralkyl); SO(Ciaralkynyl); SO(Ciaralkenyl); SO2(Ciaracyl); $SO_2(C_{1-\epsilon}alkvi)$, $SO_2(C_{1-\epsilon}alkvnvi)$, $SO_2(C_{1-\epsilon}alkenvi)$, $O_2S(C_{1-\epsilon}aevi)$, $O_3S(C_{1,4},alkyl)$, $O_3S(C_{3,4},alkenyl)$, $NH(C_{4,4},alkyl)$, $NH(C_{4,4},alkenyl)$, NH(CL_alkvnyl), NH(CL_acyl), N(CL_alkyl), N(CL_acyl), wherein alkyl, alkynyl, alkenyl and vinyl are optimally substituted by Ni. CN, one to three halogen (Cl. Br. F. 1), NO₂ C(O)O(C₄₋₄ alkyl), C(O)O(C₄₋₄ alkyl), $C(O)O(C_{4,4}$ alkynyl); $C(O)O(C_{4,4}$ alkenyl); $O(C_{4,4}$ acyl); $O(C_{4,4}$ alkyl); $O(C_{1-\epsilon} \text{ alkenvl})$, $S(C_{1-\epsilon} \text{ acyl})$, $S(C_{1-\epsilon} \text{ alkvl})$, $S(C_{1-\epsilon} \text{ alkvnvl})$, $S(C_{1-\epsilon} \text{ alkvnvl})$ alkenyl), SO(C14 acyl), SO(C14 alkyl), SO(C14 alkynyl), SO(C14 alkenyl); SO₂(C₁₋₁ acyl); SO₂(C₁₋₁ alkyl); SO₂(C₁₋₁ alkynyl); SO₂(C₁₋₄ alkenyl), OxS(Cx4 acvl), OxS(Cx4 alkvl), OxS(Cx4 alkenyl), NHz, NH(Cx4 alkyl); NH(C1.a alkenyl); NH(C1.a alkynyl); NH(C1.a acyl); N(C1.a alkyl);

 $N(C_{4\rightarrow 4} \text{ acyl})_3$, OR^3 ; R^2 and R^3 can be linked together to form a vinyl optionally substituted by one or two of N_4 , CN, Cl, Br, F, I, NO_2 ;

- R³, R⁴ and R⁵ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₁-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₆ such as CF₃ and CH₂CH₂F, lower alkenyl of C₂-C₆ such as CH=CH₂, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₄-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₆, CO₂H, CO₂R', CONH₂, CONHR', CONR'₂, CH=CHCO₂H, CH=CHCO₂R';
- R' is an optionally substituted alkyl of C₁-C₁₂ (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C₂-C₆; optionally substituted lower alkenyl of C₂-C₆; or optionally substituted acyl;
- R⁶ is an optionally substituted alkyl (including lower alkyl), cyano (CN), CH₃;

 OCH₂, OCH₂CH₃, hydroxy methyl (CH₂OH), fluoromethyl (CH₂F), azido
 (N₂), CHCN, CH₂N₃, CH₂NH₂, CH₂NHCH₃, CH₂N(CH₃)₂, alkyne
 (optionally substituted), or fluoro;

or its pharmaceutically acceptable salt or prodrug thereof in a pharmaceutically acceptable carrier.

Claim 20 (Currently Amended): A pharmaceutical composition comprising the nucleoside of claim 5 or its pharmaceutically acceptable salt or prodrug and a pharmaceutically acceptable carrier.

The composition of claim 19, wherein

Base is

and R⁴ is H₂ R² is OH₂ R²⁰ is H₂ R³ is H₂ R⁴ is NH₂ or OH₂ and R⁶ is H₂

Claim 21 (Currently Amended): <u>A pharmaceutical composition comprising the</u>
nucleoside of claim 6 or its pharmaceutically acceptable salt or prodrug and a pharmaceutically
acceptable carrier.

A pharmaceutical composition comprising a (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D or β-L) or its pharmaceutically acceptable salt or prodrug thereof, in a pharmaceutically acceptable carrier, of the structure:

wherein Base is a purine or pyrimidine base;

X is O. S. CH₂, Se, NH, N-alkyl, CHW (R, S, or racemic), C(W)₂, wherein W is F, Cl. Br, or I, and,

R³ and R³ are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid, a carbohydrate, a peptide.

a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R¹ or R² is independently H or phosphate; R⁴ and R² can also be linked with cyclic phosphate group.

Claim 22 (Currently Amended): A pharmaceutical composition comprising the nucleoside of claim 7 or its pharmaceutically acceptable salt or prodrug and a pharmaceutically acceptable carrier.

The composition of claim 21, wherein

Base is selected from the group consisting of

Yis Nor CH;

R³, R⁴ and R⁵ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₄-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₄-C₆ such as CF₃ and CH₂CH₂F, lower alkenyl of C₂-C₆ such as CH=CH₂, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₄-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₆, such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₆, CO₂H, CO₂R', CONH₂, CONHR', CONR'₂, CH=CHCO₂H, CH=CHCO₂R', and

R' is an optionally substituted alkyl of C_1 - C_{12} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_{62}

optionally substituted lower alkenyl of C2-C65 or optionally substituted acyl-

Claim 23 (Currently Amended): A pharmaceutical composition comprising the nucleoside of claim 8 or its pharmaceutically acceptable salt or prodrug and a pharmaceutically acceptable carrier.

The composition of claim 21, wherein

Base is selected from the group consisting of (a) or (b):

and wherein R^4 and R^2 are $H_1\,R^3$ is H_2 and R^4 is NH_2 or OH_1 and R^5 is NH_2

Claim 24 (Currently Amended): A pharmaceutical composition comprising the nucleoside of claim 9 or its pharmaceutically acceptable salt or prodrug and a pharmaceutically acceptable carrier.

A pharmaceutical composition comprising a (2'N)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β -D-or β -L) of the formula:

wherein

Base is

X is O, S, CH₂, Se, NH, N-alkyl, CHW (R, S, or racemic), C(W)₂, wherein W is F, Cl. Br. or I.

R* and R* are independently H, phosphate, including monophosphate; diphosphate, triphosphate, or a stabilized phosphate prodrug. H phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R* is H or phosphate; R* is H or phosphate; R* and R* or R* can also be linked with cyclic phosphate group;

 R^2 and R^3 are independently H, $C_{1,4}$ alkyl, $C_{1,4}$ alkenyl, $C_{1,4}$ alkynyl, vinyl, N_{37} CN_1 , CI_2 , Br_1 , F_1 , I_2 , NO_2 , $C(O)O(C_{1,4}$ alkyl), $C(O)O(C_{1,4}$ alkyl), $O(C_{1,4}$ alkyl), $O(C_{1,4}$ alkyl), $O(C_{1,4}$ alkyl), $O(C_{1,4}$ alkenyl), $O(C_{1,4}$ alkyl), $O(C_{1,4}$ alkenyl), $O(C_{1,4}$ alkenyl), $O(C_{1,4}$ alkyl), $O(C_{1,4}$ alkenyl), $O(C_{1,4}$ alkyl), $O(C_{1,4}$ alkyl).

 $O(C_{1-4} \text{ alkenyl})$, $S(C_{1-4} \text{ acyl})$, $S(C_{1-4} \text{ alkyl})$, $S(C_{1-4} \text{ alkynyl})$, $S(C_{1-4} \text{ alkynyl})$, $SO(C_{1-4} \text{ alkynyl})$, $SO(C_{1-4} \text{ alkynyl})$, $SO(C_{1-4} \text{ alkynyl})$, $SO_2(C_{1-4} \text{ alkynyl})$, $SO_2(C_{1-4$

- R³ and R⁴ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₄-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₄-C₆ such as CF₃ and CH₂CH₃F, lower alkenyl of C₂-C₆ such as CH-CH₂, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆ such as CH-CHCl, CH-CHBr and CH-CHI, lower alkynyl of C₂-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₄-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₆, CO₂H, CO₂R', CONH₂, CONHR', CONR'₂, CH-CHCO₂H, CH-CHCO₂R'.
- R' is an optionally substituted alkyl of C_4 - C_{43} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_{63} optionally substituted lower alkenyl of C_2 - C_{63} or optionally substituted acyl; and
- R⁶ is an optionally substituted alkyl (including lower alkyl), cyano (CN), CH₃;

 OCH₄, OCH₂CH₄, hydroxy-methyl (CH₂OH), fluoromethyl (CH₂F), azido
 (N₂), CHCN, CH₂N₃, CH₂NH₂, CH₂NHCH₃, CH₂N(CH₃)₂, alkyne
 (optionally substituted), or fluoro;

or its pharmaceutically acceptable salt or prodrug thereof and a pharmaceutically acceptable carrier.

Claim 25 (Currently Amended): <u>A pharmaceutical composition comprising the nucleoside of claim 10 or its pharmaceutically acceptable salt or prodrug and a pharmaceutically acceptable carrier.</u>

A pharmaceutical composition comprising a (2^iR) -2'-deoxy-2'-fluoro-2'-C-methyl nucleoside $(\beta$ -D-or β -L) of the formula:

wherein

Base is

R³ and R² are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid, a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R⁴ or R² is independently H or phosphate; R³ and R² can also be linked with cyclic phosphate group:

R³ and R⁴ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₃, NHR', NR'₃, lower alkyl of C₄-C₆, halogenated (F, Cl, Br, I) lower

alkyl of C₁-C₀ such as CF₃ and CH₂CH₂F, lower alkenyl of C₂-C₀ such as CH=CH₃, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₀ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₀ such as C≡CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₀, lower alkoxy of C₁-C₀ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₀, CO₂H, CO₂R', CONH₂, CONHR', CONR'₃; CH=CHCO₂H, CH=CHCO₂R';

R¹ is an optionally substituted alkyl of C₁-C₁₃ (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C₂-C₆, optionally substituted lower alkenyl of C₂-C₆, or optionally substituted acyl:

or its pharmaceutically acceptable salt or prodrug thereof, in a pharmaceutically acceptable carrier.

Claim 26 (Currently Amended): A pharmaceutical composition comprising the nucleoside of claim 11 or its pharmaceutically acceptable salt or prodrug and a pharmaceutically acceptable carrier.

A pharmaceutical composition comprising a (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D) or its pharmaceutically acceptable salt or prodrug thereof, in a pharmaceutically acceptable carrier of the formula:

Claims 27-30 (Canceled).

Claim 31 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of hepatitis C infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 1 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

a (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D-or-β-L) of the formula:

wherein

Base is a purine or pyrimidine base;

X is O, S, CH₂, Se, NH, N-alkyl, CHW (R, S, or racemic), C(W)₂, wherein W is F, Cl., Br, or I;

R⁴ and R² are independently H, phosphate, including monophosphate; diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered *in vivo* is capable of providing a compound wherein R² is H or phosphate; R² is H or phosphate; R³ and R² or R² can also be linked with cyclic phosphate group;

R* and R* are independently H, C₁₋₄ alkyl, C₁₋₄ alkenyl, C₁₋₄ alkynyl, vinyl, N₃; $CN_{+}Cl_{+}Br_{+}F_{+}l_{+}NO_{2-}C(O)O(C_{1-4}alkyl)_{+}C(O)O(C_$ alkynyl), $C(O)O(C_{1,+}alkenyl)$, $O(C_{1,+}acyl)$, $O(C_{1,+}alkyl)$, $O(C_{1,+}alkenyl)$, S(C44 acv1), S(C44 alkv1), S(C44 alkvnv1), S(C44 alkenv1), SO(C44 acv1), SO(CLaalkvl). SO(CLaalkvnvl). SO(CLaalkenvl). SO(CLaaevl). $SO_2(C_{3-4}|aikvi)$, $SO_2(C_{3-4}|aikvnvi)$, $SO_2(C_{3-4}|aikenvi)$, $O_3S(C_{3-4}|aevi)$, OaS(Cauralkyl); OaS(Cauralkenyl); NH2; NH(Cauralkyl); NH(Cauralkenyl); NH(C_{1,4} alkvnvl), NH(C_{1,4} acvl), N(C_{1,4} alkvl)₂, N(C_{1,4} acvl)₂, wherein alkyl, alkynyl, alkenyl and vinyl are optinally substituted by Na. CN, one to three halogen (CI, Br, F, I), NO₂, C(O)O(C₄₋₄alkyl), C(O)O(C₄₋₄alkyl), $C(O)O(C_{1...t}alkynyl)$. $C(O)O(C_{1...t}alkenyl)$. $O(C_{1...t}acyl)$. $O(C_{1...t}alkyl)$. O(Cala alkenyl), S(Cala acyl), S(Cala alkyl), S(Cala alkynyl), S(Cala alkenvl), $SO(C_{4-4}$ acyl); $SO(C_{4-4}$ alkyl); $SO(C_{4-4}$ alkynyl), $SO(C_{4-4}$ alkenyl), $SO_2(C_{4-4}acyl)$, $SO_2(C_{4-4}alkyl)$, $SO_2(C_{4-4}alkynyl)$, $SO_2(C_{4-4}alkynyl)$ alkenyl), O2S(C14 acvl), O2S(C14 alkvl), O2S(C14 alkenvl), NH2, NH(C14 alkyl), NH(C14 alkenyl), NH(C14 alkynyl), NH(C14 acyl), N(C14 alkyl)2: N(C1.4 acv1)z, OR2; R2 and R2 can be linked together to form a vinvl optionally substituted by one or two of Na, CN, Cl. Br. F. I. NO2: R⁶ is an optionally substituted alkyl (including lower alkyl), evano (CN), CH₂: OCH₃; OCH₃CH₃; hydroxy-methyl-(CH₃OH); fluoromethyl-(CH₃F); azido (N2), CHCN, CH2N2, CH2NH2, CH2NHCH2, CH2N(CH2), alkvne

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable carrier.

(optionally substituted), or fluoro;

Claim 32 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of hepatitis C infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 2 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 31.

wherein Base is selected from the group consisting of

Yis Nor CH.

R³, R⁴ and R⁵ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₁-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₆ such as CF₃ and CH₂CH₂F, lower alkenyl of C₂-C₆ such as CH=CH₂, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₃-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₆, such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₆, CO₂H, CO₂R', CONH₂, CONHR', CONR'₂, CH=CHCO₂H, CH=CHCO₂R', and

R' is an optionally substituted alkyl of C_1 - C_{12} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_6 ; optionally substituted lower alkenyl of C_2 - C_6 ; or optionally substituted acyl.

Claim 33 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of hepatitis C infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 3 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 31, wherein

Base is selected from the group consisting of (a) or (b):

and wherein R^4 is H, R^2 is OH, R^3 is H, R^3 is H, and R^4 is NH_2 or OH, and R^5 is NH_2 .

Claim 34 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of hepatitis C infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 4 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier_a (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl-nucleoside (β-D-or β-L)-of-the-formula:

wherein

Base is selected from the group consisting of

Yis Nor CH;

R* and R² are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug. H phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R* is H or phosphate, R² is H or phosphate, R* and R* or R* can also be linked with cyclic phosphate group;

R² and R² are independently H, C₁₋₁ alkyl, C₁₋₁ alkenyl, C₁₋₄ alkynyl, vinyl, N₃;

CN, Cl, Br, F, I, NO₂, C(O)O(C₁₋₁ alkyl), C(O)O(C₁₋₄ alkyl), C(O)O(C₁₋₄ alkynyl), C(O)O(C₁₋₄ alkenyl), O(C₁₋₄ alkynyl), O(C₁₋₄ alkenyl), O(C₁₋₄ alkenyl), S(C₁₋₄ alkyl), S(C₁₋₄ alkynyl), S(C₁₋₄ alkenyl), SO(C₁₋₄ acyl);

SO(C₁₋₄ alkyl), SO(C₁₋₄ alkynyl), SO(C₁₋₄ alkenyl), SO₂(C₁₋₄ acyl);

SO₂(C₁₋₄ alkyl), SO₃(C₁₋₄ alkynyl), SO₃(C₁₋₄ alkenyl), O₃S(C₁₋₄ acyl);

O₃S(C₁₋₄ alkyl), O₃S(C₁₋₄ alkenyl), NH₃, NH(C₁₋₄ alkyl), NH(C₁₋₄ alkenyl),

NH(C₁₋₄ alkynyl), NH(C₁₋₄ acyl), N(C₁₋₄ alkyl)₃, N(C₁₋₄ acyl)₃, wherein alkyl, alkynyl, alkenyl and vinyl are optinally substituted by N₃, CN, one to three halogen (Cl, Br, F, I), NO₃, C(O)O(C₁₋₄ alkyl), C(O)O(C₁₋₄ alkyl).

 $G(O)O(C_{4-4}$ alkynyi), $G(O)O(C_{4-4}$ alkenyi), $O(C_{4-4}$ acyi), $O(C_{4-4}$ alkyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkenyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkenyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkyi), $O(C_{4-4}$ alkyi),

- R³, R⁴ and R⁵ are independently H, halogen including F, Cl, Br, I, OH, OR², SH, SR², NH₂, NHR², NR²₂, lower alkyl of C₁-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₆ such as CH₂CH₂F, lower alkenyl of C₂-C₆ such as CH=CH₂, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₁-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, CO₂H, CO₂R², CONH₂, CONHR², CONR²₂, CH=CHCO₁H, CH=CHCO₂R².
- R² is an optionally substituted alkyl of C₁-C₃₂ (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C₂-C₆; optionally substituted lower alkenyl of C₂-C₆; or optionally substituted acyl:
- R⁶ is an optionally substituted alkyl (including lower alkyl), cyano (CN), CH₃₇

 OCH₃₇, OCH₃CH₃₇, hydroxy methyl (CH₂OH), fluoromethyl (CH₃F), azido
 (N₃), CHCN, CH₂N₃, CH₃NH₂, CH₂NHCH₃₇, CH₂N(CH₃)₂, alkyne
 (optionally substituted), or fluoro:

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable carrier.

Claim 35 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of hepatitis C infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 5 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 34, wherein

Base is

and R4 is H, R2 is OH, R2 is H, R3 is H, R4 is NH2 or OH, and R6 is H.

Claim 36 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of hepatitis C infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 6 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

a (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D or β-L) or its pharmaceutically acceptable salt or prodrug thereof of the structure:

wherein Base is a purine or pyrimidine base;

X is O, S, CH₂, Se, NH, N-alkyl, CHW (R, S, or racemic), C(W)₂, wherein W is F; Cl. Br, or I; and,

R* and R² are independently H, phosphate, including monophosphate; diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid, a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R* or R* is independently H or phosphate; R* and R* can also be linked with cyclic phosphate group;

optionally, in a pharmaceutically acceptable carrier.

Claim 37 (Withdrawn; Currently Amended): <u>A method for the treatment or prophylaxis</u> of hepatitis C infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 7 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 36, wherein

Base is selected from the group consisting of:

Yis Nor CH:

R³, R⁴ and R⁵ are independently H, halogen including F, Cl. Br. I, OH, OR', SH, SR', NH₂, NHR', NR'₃, lower alkyl of C₄-C₆, halogenated (F, Cl. Br, I)

lower alkyl of C₁-C₆ such as CF₃ and CH₂CH₃F, lower alkenyl of C₂-C₆ such as CH=CH₃, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₃-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₄-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₆, CO₂H, CO₂R², CONH₂, CONHR², CONR²₂; CH=CHCO₂H, CH=CHCO₂R², and;

Rhis an optionally substituted alkyl of C_4 - C_{42} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_{63} optionally substituted lower alkenyl of C_2 - C_{63} or optionally substituted acyl-

Claim 38 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of hepatitis C infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 8 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 36, wherein

Base is selected from the group consisting of (a) or (b):

and wherein R^4 and R^2 are H_1 , R^3 is H_2 and R^4 is NH_2 or OH_1 and R^5 is NH_2 .

Claim 39 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of hepatitis C infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 9 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of hepatitis C infection comprising administering to a host an antivirally effective amount of a (2!R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside $(\beta$ -D or β -L) of the formula:

wherein

Base is

X is O. S. CH₂, Se, NH, N-alkyl, CHW (R, S, or recemic), C(W)₂, wherein W is F, Cl. Br. or I;

R* and R* are independently H, phosphate, including monophosphate; diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl. O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an t. or D-amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of

providing a compound wherein R³ is H or phosphate; R³ is H or phosphate; R⁴ and R³ or R³ can also be linked with cyclic phosphate group;

R² and R² are independently H, C₃₋₄ alkyl, C₃₋₄ alkenyl, C₄₋₄ alkynyl, vinyl, N₃₂ CN. Cl. Br. F. L. NO2 C(O)O(C14 alkyl). C(O)O(C14 alkyl). C(O)O(C14 alkynyl), $C(O)O(C_{k+1}$ alkenyl), $O(C_{k+1}$ acyl), $O(C_{k+1}$ alkyl), $O(C_{k+1}$ alkenyl), $S(C_{1,a} \text{-acv})$, $S(C_{1,a} \text{-alkv})$, $S(C_{1,a} \text{-alkv})$, $S(C_{1,a} \text{-alke})$, $SO(C_{1,a} \text{-acv})$, SO(Ci., alkv1), SO(Ci., alkvnv1), SO(Ci., alkenv1), SO(Ci., acv1), $SO_3(C_{4-4}$ -alkyl), $SO_3(C_{4-4}$ -alkynyl), $SO_3(C_{4-4}$ -alkenyl), $O_3S(C_{4-4}$ -acyl), O₂S(C₁₋₄ alkyl), O₂S(C₁₋₄ alkenyl), NH₂, NH(C₁₋₄ alkyl), NH(C₁₋₄ alkenyl), NH(CLankvnvl), NH(CLancvl), N(CLanckvl)a, N(CLancvl)a, wherein alkyl, alkynyl, alkenyl and vinyl are optinally substituted by Na CN, one to three halogen (Cl., Br., F., I), NO₃, C(O)O(C₄₋₄ alkyl), C(O)O(C₄₋₄ alkyl); $C(O)O(C_{4\rightarrow}$ alkynyl), $C(O)O(C_{4\rightarrow}$ alkenyl), $O(C_{4\rightarrow}$ acyl), $O(C_{4\rightarrow}$ alkyl), O(C1.4 alkenyl), S(C1.4 acyl), S(C1.4 alkyl), S(C1.4 alkynyl), S(C1.4 alkenvi). SO(Cs_acvi). SO(Cs_alkvi). SO(Cs_alkvnvi). SO(Cs_a alkenvi); SO₂(C₁₋₁ acvi); SO₂(C₁₋₁ alkvi); SO₂(C₁₋₁ alkvivi); SO₂(C₁₋₄ alkenyl), O2S(C2.4 acvl), O2S(C2.4 alkvl), O2S(C3.4 alkenyl), NH2; NH(C3.4 alkyl), NH(CL, alkenyl), NH(CL, alkynyl), NH(CL, acyl), N(CL, alkyl);; N(C_{1,4} acvl): OR⁷: R² and R² can be linked together to form a vinvl optionally substituted by one or two of No. CN. Cl. Br. F. L. NOo:

R³ and R⁴ are independently H₂ halogen including F₂ Cl₂ Br₃ I₄ OH₄ OR², SH₄ SR², NH₂, NHR², NR²₂, lower alkyl of C₄-C₆, halogenated (F₂ Cl₃ Br₄) lower alkyl of C₄-C₆ such as CH=CH₂, halogenated (F₂ Cl₃ Br₄) lower alkenyl of C₄-C₆ such as CH=CHCl₄ CH=CHBr and CH=CHI₄ lower alkynyl of C₄-C₆ such as C=CH₄ halogenated (F₁ Cl₃ Br₄) lower alkynyl of C₄-C₆, lower alkoxy of C₄-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F₁ Cl₃ Br₄) lower alkoxy of C₄-C₆, CO₂H₄-CO₃R², CONH₂, CONHR², CONR²₃, CH=CHCO₂H₄-CH₄-CHCO₃R².

R' is an optionally substituted alkyl of C_1 - C_{32} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_{63} optionally substituted lower alkenyl of C_2 - C_{63} or optionally substituted acyl-and.

R⁶ is an optionally substituted alkyl (including lower alkyl), cyano (CN), CH₃;

OCH₄, OCH₂CH₃, hydroxy methyl (CH₂OH), fluoromethyl (CH₃F), azido
(N₃), CHCN, CH₂N₄, CH₂NH₂, CH₂NHCH₃, CH₂N(CH3)₂, alkyne
(optionally substituted), or fluoro;

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable carrier

Claim 40 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of hepatitis C infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 10 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of hepatitis C infection comprising administering to a host an antivirally effective amount of a (2!R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β -D or β -L) of the formula:

wherein

Base is

R* and R* are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid, a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R* or R* is independently H or phosphate; R* and R* can also be linked with cyclic phosphate group;

R³ and R⁴ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₄-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₄-C₆ such as CH₂CH₂F, lower alkenyl of C₂-C₆ such as CH=CH₃, halogenated (F, Cl, Br, I) lower alkenyl of C₃-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₃-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₃-C₆, lower alkoxy of C₄-C₆ such as CH₂OH and CH₃CH₃OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₆, CO₂H, CO₂R', CONH₂, CONHR', CONR'₃, CH=CHCO₂H, CH=CHCO₂R', and

R' is an optionally substituted alkyl of C_1 - C_{12} (particularly when the alkyl is an amino acid residue); cycloalkyl, optionally substituted alkynyl of C_2 - C_{62} optionally substituted lower alkenyl of C_2 - C_{62} or optionally substituted acyl;

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable carrier

Claim 41 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of hepatitis C infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 11 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of hepatitis C infection comprising administering to a host an antivirally effective amount of a (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (fi-D) or its pharmaceutically acceptable salt or produig thereof of the formula:

optionally in a pharmaceutically acceptable carrier.

Claims 42-45 (Canceled).

Claim 46 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a rhinovirus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 1 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier. a (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl-nucleoside (β-D-or β-L)-of-the-formula:

wherein

Base is a purine or pyrimidine base:

X is O, S, CH₂, Se, NH, N-alkyl, CHW (R, S, or racemic), C(W)₂, wherein W is F, Cl. Br. or I:

R³ and R² are independently H, phosphate, including monophosphate; diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R³ is H or phosphate; R³ is H or phosphate; R³ and R³ or R² can also be linked with cyclic phosphate group;

R² and R² are independently H, C₁₋₁ alkyl, C₁₋₁ alkenyl, C₁₋₁ alkynyl, vinyl, N₂₁

CN, Cl, Br, F, L, NO₂, C(O)O(C₁₋₄ alkyl), C(O)O(C₁₋₄ alkyl), C(O)O(C₁₋₄ alkyl), C(O)O(C₁₋₄ alkenyl), O(C₁₋₄ alkyl), O(C₁₋₄ alkenyl), S(C₁₋₄ alkyl), S(C₁₋₄ alkyl), SO(C₁₋₄ alkenyl), SO(C₁₋₄ alkyl), SO(C₁₋₄ alkyl), SO(C₁₋₄ alkynyl), SO(C₁₋₄ alkenyl), SO₂(C₁₋₄ acyl), SO₂(C₁₋₄ alkyl), SO₂(C₁₋₄ alkynyl), SO₃(C₁₋₄ alkenyl), O₃S(C₁₋₄ acyl), O₃S(C₁₋₄ alkyl), O₃S(C₁₋₄ alkenyl), NH₂, NH(C₁₋₄ alkyl), NH(C₁₋₄ alkenyl), NH(C₁₋₄ alkenyl), NH(C₁₋₄ alkyl), NH(C₁₋₄ alkenyl), NH(C₁₋₄ alkyl), NH(C₁₋₄ alkenyl), NH(C₁₋₄ alkyl), NH(C₁₋₄ alkyl), NH(C₁₋₄ alkyl), NH(C₁₋₄ alkyl), NH(C₁₋₄ alkyl), NH₃, NH₄, alkyl), NH₄, alkenyl, alkenyl, and vinvl are optimally substituted by N₃, CN, one

to three halogen (Cl. Br. F. I). NO₂, C(O)O(C₁₋₄ alkyl), C(O)O(C₁₋₄ alkyl), C(O)O(C₁₋₄ alkynyl), C(O)O(C₁₋₄ alkyl), O(C₁₋₄ alkyl), O(C₁₋₄ alkyl), O(C₁₋₄ alkyl), O(C₁₋₄ alkyl), S(C₁₋₄ alkyl), S(C₁₋₄ alkynyl), S(C₁₋₄ alkynyl), S(C₁₋₄ alkynyl), SO(C₁₋₄ alkynyl), SO(C₁₋₄ alkynyl), SO(C₁₋₄ alkynyl), SO(C₁₋₄ alkynyl), SO₂(C₁₋₄ alkynyl), SO₂(C₁₋₄ alkynyl), SO₂(C₁₋₄ alkynyl), SO₂(C₁₋₄ alkynyl), NH₂, NH(C₁₋₄ alkyl), NH(C₁₋₄ alkyl), NH(C₁₋₄ alkyl), NH(C₁₋₄ alkyl), NH(C₁₋₄ alkyl)₂, N(C₁₋₄ alkyl)₂, N(C₁₋₄ alkyl)₂, O(C₁₋₄ alkyl)₂, O(C₁₋₄ alkyl)₂, O(C₁₋₄ alkyl)₃, O(C₁₋₄ alkyl)₃, NH(C₁₋₄ acyl), N(C₁₋₄ alkyl)₃, N(C₁₋₄ acyl)₃, O(C₁₋₄ alkyl)₃, N(C₁₋₄ alkyl)₃, N(C₁₋₄ acyl)₃, O(C₁₋₄ alkyl)₃, N(C₁₋₄ acyl)₃, N(C₁₋₄ acyl)₃, N(C₁₋₄ alkyl)₃, N(C₁₋₄ acyl)₃, N(C₁₋₄ alkyl)₃, N(C₁₋₄ acyl)₃, N(C

R⁶ is an optionally substituted alkyl (including lower alkyl), cyano (CN), CH₃;

OCH₃, OCH₂CH₃, hydroxy methyl (CH₂OH), fluoromethyl (CH₂F), azido
(N₃), CHCN, CH₂N₃, CH₂NH₂, CH₂NHCH₃, CH₂N(CH₃)₂, alkyne
(optionally substituted), or fluoro:

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable carrier.

Claim 47 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a rhinovirus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 2 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 46:

wherein Base is selected from the group consisting of

Y is Nor CH.

R³, R³ and R⁵ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₁-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₆ such as CF₂ and CH₂CH₂F, lower alkenyl of C₂-C₆ such as CH-CH₂, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆ such as CH-CHCl, CH-CHBr and CH-CHI, lower alkynyl of C₂-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₁-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, CO₂H, CO₂R', CONH₂, CONHR', CONR'₂, CH=CHCO₂H, CH=CHCO₂R', and

R' is an optionally substituted alkyl of C_1 - C_{42} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_6 ; optionally substituted lower alkenyl of C_2 - C_6 ; or optionally substituted acyl-

Claim 48 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a rhinovirus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 3 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 46, wherein

Base is selected from the group consisting of (a) or (b):

and wherein R^4 is H, R^2 is OH, R^3 is H, R^4 is H, and R^4 is NH2 or OH, and R^3 is NH2.

Claim 49 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a rhinovirus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 4 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a rhinovirus infection comprising administering to a host an antivirally effective amount of a (2!R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside $(\beta$ -D or β -L) of the formula:

wherein

Base is selected from the group consisting of

Yis Nor CH;

R³ and R² are independently H, phosphate, including monophosphate; diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl-sulfonyl, including methanesulfonyl and

benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an Lor D-amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R* is H or phosphate; R* is H or phosphate; R* and R* or R* can also be linked with cyclic phosphate group;

R2 and R2 are independently H, C1.4 alkyl, C1.4 alkenyl, C1.4 alkynyl, vinyl, N3; $CN_{-}Cl_{-}Br_{-}F_{-}I_{-}NO_{2-}C(O)O(C_{4-4}alkvl), C(O)O(C_{4-4}alkvl), C(O)O(C_{4-4}a$ alkynyl), $C(O)O(C_{1,4}$ alkenyl), $O(C_{1,4}$ acyl), $O(C_{1,4}$ alkyl), $O(C_{1,4}$ alkenyl), S(Caladevi), S(Caladikvi), S(Caladikvnvi), S(Caladikenvi), SO(Caladevi), SO(Cala alkyl), SO(Cala alkynyl), SO(Cala alkenyl), SO(Cala acyl), $SO_2(C_{4-\epsilon}alkyl)$, $SO_2(C_{4-\epsilon}alkynyl)$, $SO_2(C_{4-\epsilon}alkenyl)$, $O_3S(C_{4-\epsilon}acyl)$, $O_3S(C_{1-\epsilon}alkyl)$, $O_3S(C_{1-\epsilon}alkenyl)$, NH_2 , $NH(C_{1-\epsilon}alkyl)$, $NH(C_{1-\epsilon}alkenyl)$. NH(CL_ralkynyl), NH(CL_racyl), N(CL_ralkyl), N(CL_racyl), wherein alkyl, alkynyl, alkenyl and vinyl are optinally substituted by No. CN, one to three halogen (Cl, Br, F, I), NO2, C(O)O(C3,4 alkvl), C(O)O(C4,4 alkvl); $C(O)O(C_{1-4}alkvnvl)$, $C(O)O(C_{1-4}alkenvl)$, $O(C_{1-4}aevl)$, $O(C_{1-4}alkvl)$, $O(C_{1-}alkenvl)$, $S(C_{1-}aevl)$, $S(C_{1-}alkvl)$, $S(C_{1-}alkvnvl)$, $S(C_{1-}alkvnvl)$ alkenyl), SO(Ci., acyl), SO(Ci., alkyl), SO(Ci., alkynyl), SO(Ci., alkenvi), SO₂(C_{1,1} acvi), SO₂(C_{1,4} alkvi), SO₂(C_{1,4} alkvnvi), SO₂(C_{1,4} alkenvi), OaS(Caaracyi), OaS(Caaralkyi), OaS(Caaralkenyi), NH₂₀ NH(Caar alkyl), NH(C4.4 alkenyl), NH(C4.4 alkynyl), NH(C4.4 acyl), N(C4.4 alkyl); N(C_{1-r}acyl)₂, OR⁷: R² and R² can be linked together to form a vinyl optionally substituted by one or two of Na, CN, Cl. Br. F. L NO2:

R³, R³ and R³ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₁-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₆ such as CF₃ and CH₂CH₂F, lower alkenyl of C₂-C₆ such as CH=CH₂, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆ such as

C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₄-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₆, CO₂H, CO₂R¹, CONH₂, CONHR², CONR²₂;
CH=CHCO₂H, CH=CHCO₂R²;

R' is an optionally substituted alkyl of C_1 - C_{12} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_6 ; optionally substituted lower alkenyl of C_2 - C_6 ; or optionally substituted acyl:

R⁶ is an optionally substituted alkyl (including lower alkyl), cyano (CN), CH₂,

OCH₃, OCH₂CH₃, hydroxy methyl (CH₂OH), fluoromethyl (CH₂F), azido

(N₃), CHCN, CH₂N₃, CH₂NH₂, CH₂NHCH₃, CH₂N(CH₃)₂, alkyne

(optionally substituted), or fluoro:

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable sarrier

Claim 50 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a rhinovirus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 5 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 49, wherein

Base is

and R^3 is H, R^2 is OH, R^3 is H, R^3 is H, R^4 is NH_2 or OH, and R^6 is H.

Claim 51 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a rhinovirus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 6 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a rhinovirus infection comprising administering to a host an antivirally effective amount of a (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D or β-L) or its pharmaceutically acceptable salt or prodrug thereof of the structure:

wherein Base is a purine or pyrimidine base;

X-is-O₇-S₇-CH₂₇-Se₇-NH₂-N-alkyl₇-CHW (R₇-S₇-or-racemic); C(W)₂₇-wherein-W-is-F₇-Cl₂-Br₂-or-L-and₂

R⁴ and R² are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D amino acid, a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R⁴ or R² is independently H or phosphate; R⁴ and R² can also be linked with cyclic phosphate group and optionally a pharmaceutically acceptable carrier.

Claim 52 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a rhinovirus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 7 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim-51, wherein

Base is selected from the group consisting of:

Yis Nor CH;

R², R³ and R⁵ are independently H, halogen including F, Cl, Br, I, OH, OR.', SH, SR.', NH₂, NHR.', NR.'₂, lower alkyl of C₁-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₆ such as CF₂ and CH₂CH₂F, lower alkenyl of C₂-C₆ such as CH=CHCl, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆, such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₁-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, CO₃H, CO₃R.', CONH₂, CONHR.', CONR'₂, CH=CHCO₂H, CH=CHCO₂R.', and,

R' is an optionally substituted alkyl of C_1 - C_{k2} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_6 ; optionally substituted lower alkenyl of C_2 - C_6 ; or optionally substituted acyl:

Claim 53 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a rhinovirus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 8 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim-51, wherein

Base is selected from the group consisting of (a) or (b):

and wherein R^4 and R^7 are H, R^3 is H, and R^4 is NH $_2$ or OH, and R^8 is NH $_2$.

Claim 54 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a rhinovirus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 9 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a rhinovirus infection comprising administering to a host an antivirally effective amount of a (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D or β-L) of the formula:

wherein

Base is

X is O, S, CH₂, Se, NH, N-alkyl, CHW (R, S, or racemic), C(W)₂, wherein W is F, Cl. Br. or I.

R* and R* are independently H, phosphate, including monophosphate; diphosphate, triphosphate, or a stabilized phosphate prodrug. H phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R* is H or phosphate; R* is H or phosphate; R* and R* or R* can also be linked with cyclic phosphate group;

 R^2 and R^3 are independently H, C_{1-} alkyl, C_{1-} alkenyl, C_{1-} alkynyl, vinyl, N_3 , CN, CI, Br, F, I, NO_2 , $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{1-4}$ alkenyl), $O(C_{1-4}$ alkyl), $O(C_{1-4}$ alkyl), $O(C_{1-4}$ alkenyl), $O(C_{1-4}$ alkyl), $O(C_{1-4}$ alkenyl), $O(C_{1-4}$ alkyl), $O(C_{1-4}$ alkyl).

 $O(C_{1-\epsilon} \text{ alkenyl}), S(C_{1-\epsilon} \text{ acyl}), S(C_{1-\epsilon} \text{ alkyl}), S(C_{1-\epsilon} \text{ alkynyl}), S(C_{1-\epsilon} \text{ alkynyl}), SO(C_{1-\epsilon} \text{ alkynyl}), SO(C_{1-\epsilon} \text{ alkynyl}), SO(C_{1-\epsilon} \text{ alkynyl}), SO(C_{1-\epsilon} \text{ alkynyl}), SO_2(C_{1-\epsilon} \text{ alky$

- R³ and R³ are independently H₂ halogen including F₂ Cl₂ Br₃ I₄ OH₄ OR², SH₅ SR², NH₂, NHR², NR²₂, lower alkyl of C₄-C₆, halogenated (F₂ Cl₃ Br₃ I) lower alkyl of C₄ C₆ such as CH₂ CH₂. Halogenated (F₂ Cl₃ Br₃ I) lower alkenyl of C₄-C₆ such as CH=CHCl₃ CH=CHBr and CH=CHI₄ lower alkynyl of C₄-C₆ such as C=CH₄ halogenated (F₂ Cl₃ Br₄ I) lower alkynyl of C₄-C₆, lower alkoxy of C₄-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F₂ Cl₃ Br₄ I) lower alkoxy of C₄-C₆, CO₂H₄-CO₂R², CONH₂, CONHR², CONR²₂, CH=CHCO₃H₄-CH₄-CHCO₄R²;
- R' is an optionally substituted alkyl of C_4 - C_{43} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_{63} optionally substituted lower alkenyl of C_2 - C_{63} or optionally substituted acyl;
- R⁶ is an optionally substituted alkyl-(including-lower alkyl), cyano (CN), CH₃;

 OCH₄, OCH₂CH₄, hydroxy-methyl-(CH₂OH), fluoromethyl-(CH₂F), azido
 (N₂), CHCN, CH₂N₃, CH₂NH₂, CH₂NHCH₃, CH₂N(CH₃)₂, alkyne
 (optionally substituted), or fluoro;

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable carrier.

Claim 55 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a rhinovirus infection comprising administering to a host an antivirally effective amount of the

nucleoside of claim 10 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a rhinovirus infection comprising administering to a host an antivirally effective amount of a (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D or β-L) of the formula:

wherein

Base is

R* and R² are independently H, phosphate, including monophosphate; diphosphate, triphosphate, or a stabilized phosphate prodrug, H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid, a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R* or R² is independently H or phosphate; R* and R² can also be linked with cyclic phosphate group;

R³ and R⁴ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₄-C₆, halogenated (F, Cl, Br, I) lower

alkyl of C_1 - C_6 -such as CF_3 and CH_2CH_2F , lower alkenyl of C_2 - C_6 -such as $CH=CH_3$, halogenated (F,CI,Br,I) lower alkenyl of C_2 - C_6 -such as CH=CHCI, CH=CHBr and CH=CHI, lower alkynyl of C_3 - C_6 -such as C=CH, halogenated (F,CI,Br,I) lower alkynyl of C_3 - C_6 , lower alkoxy of C_4 - C_6 -such as CH_2OH and CH_2CH_2OH , halogenated (F,CI,Br,I) lower alkoxy of C_4 - C_6 - C_6 - C_6 - C_6 - C_6 - C_7 - C_8 - $C_$

Rhis an optionally substituted alkyl of C_4 - C_{42} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_{63} optionally substituted lower alkenyl of C_2 - C_{63} or optionally substituted acyl:

or its pharmaceutically acceptable salt or prodrug thereof; optionally in a pharmaceutically acceptable carrier.

Claim 56 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a rhinovirus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 11 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a rhinovirus infection comprising administering to a host an antivirally effective amount of a (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (B-D) or its pharmaceutically acceptable salt or produce thereof of the formula:

optionally in a pharmaceutically acceptable carrier.

Claims 57-60 (Canceled).

Claim 61 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a yellow fever virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 1 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier a (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl-nucleoside (β-D or β-L) of the formula:

wherein

Base is a purine or pyrimidine base;

X is O, S, CH₂, Se, NH, N-alkyl, CHW (R, S, or racemic), C(W)₂, wherein W is F, Cl. Br, or I;

R³ and R² are independently H, phosphate, including monophosphate; diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl. O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R³ is H or phosphate; R³ is H or phosphate; R³ and R² or R² can also be linked with cyclic phosphate group;

 $R^2 \text{ and } R^2 \text{ are independently-H}, C_{i \sim f} \text{ alkyl}, C_{i \sim f} \text{ alkenyl}, C_{i \sim f} \text{ alkynyl}, \text{ vinyl}, N_3;$ $CN_{+}Cl_{+}Br_{+}F_{+}l_{+}NO_{2}_{+}C(O)O(C_{1-4}alkyl)_{+}C(O)O$ alkynyl), $C(O)O(C_{1,+}alkenyl)$, $O(C_{1,+}acyl)$, $O(C_{1,+}alkyl)$, $O(C_{1,+}alkenyl)$, $S(C_{4,4} \text{ acv1})$, $S(C_{4,4} \text{ alkv1})$, $S(C_{4,4} \text{ alkvnv1})$, $S(C_{4,4} \text{ alkenv1})$, $SO(C_{4,4} \text{ acv1})$, SO(C_aalkyl), SO(C_aalkynyl), SO(C_aalkenyl), SO₂(C_aacyl), $SO_2(C_{3-4}|aikvi)$, $SO_2(C_{3-4}|aikvnvi)$, $SO_2(C_{3-4}|aikenvi)$, $O_3S(C_{3-4}|aevi)$, OaS(Cauralkyl); OaS(Cauralkenyl); NH2; NH(Cauralkyl); NH(Cauralkenyl); NH(C_{1,4} alkvnvl), NH(C_{1,4} acvl), N(C_{1,4} alkvl)₂, N(C_{1,4} acvl)₂, wherein alkyl, alkynyl, alkenyl and vinyl are optinally substituted by Na. CN, one to three halogen (CI, Br, F, I), NO₂, C(O)O(C₄₋₄alkyl), C(O)O(C₄₋₄alkyl), $C(O)O(C_{1...t}alkynyl)$. $C(O)O(C_{1...t}alkenyl)$. $O(C_{1...t}acyl)$. $O(C_{1...t}alkyl)$. O(Cala alkenyl), S(Cala acyl), S(Cala alkyl), S(Cala alkynyl), S(Cala alkenvl), $SO(C_{4-4}$ acyl); $SO(C_{4-4}$ alkyl); $SO(C_{4-4}$ alkynyl), $SO(C_{4-4}$ alkenyl), $SO_2(C_{4-4}acyl)$, $SO_2(C_{4-4}alkyl)$, $SO_2(C_{4-4}alkynyl)$, $SO_2(C_{4-4}alkynyl)$ alkenyl), O2S(C24 acvl), O2S(C44 alkvl), O2S(C44 alkenvl), NH2, NH(C44 alkyl), NH(C14 alkenyl), NH(C14 alkynyl), NH(C14 acyl), N(C14 alkyl)2: N(C1-racyl)2: OR2: R2 and R2 can be linked together to form a vinvl optionally substituted by one or two of Na, CN, Cl. Br. F. I. NO2: R⁶ is an optionally substituted alkyl (including lower alkyl), evano (CN), CH₂: OCH₃; OCH₃CH₃; hydroxy-methyl-(CH₃OH); fluoromethyl-(CH₃F); azido (Na) CHCN CH5Na CH5NH5 CH5NHCHa CH5N(CHa)5 alkvne

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable carrier.

(optionally substituted), or fluoro;

Claim 62 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a yellow fever virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 2 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 61:

wherein Base is selected from the group consisting of

Yis Nor CH.

R³, R⁴ and R⁵ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₁-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₆ such as CF₂ and CH₂CH₂F, lower alkenyl of C₂-C₆ such as CH=CH₂, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆, such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₁-C₆, such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, CO₂H, CO₂R', CONH₂, CONHR', CONR'₂, CH=CHCO₂H, CH=CHCO₂R'; and;

Rhis an optionally substituted alkyl of C_1 - C_{12} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_6 ; or optionally substituted acyl.

Claim 63 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a yellow fever virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 3 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 61, wherein

Base is selected from the group consisting of (a) or (b):

and wherein R^4 is H_cR^2 is OH_cR^2 is H_cR^3 is H_c and R^4 is NH_2 or OH_c and R^8 is NH_2 .

Claim 64 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a yellow fever virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 4 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a yellow fever virus infection comprising administering to a host an antivirally effective amount of a (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D or β-L) of the formula:

wherein

Base is selected from the group consisting of

Yis Nor CH;

R* and R² are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug. H phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R* is H or phosphate, R² is H or phosphate, R* and R* or R* can also be linked with cyclic phosphate group;

R² and R² are independently H, C₁₋₁ alkyl, C₁₋₁ alkenyl, C₁₋₄ alkynyl, vinyl, N₃;

CN, Cl, Br, F, I, NO₂, C(O)O(C₁₋₁ alkyl), C(O)O(C₁₋₄ alkyl), C(O)O(C₁₋₄ alkynyl), C(O)O(C₁₋₄ alkenyl), O(C₁₋₄ alkynyl), O(C₁₋₄ alkenyl), O(C₁₋₄ alkenyl), S(C₁₋₄ alkyl), S(C₁₋₄ alkynyl), S(C₁₋₄ alkenyl), SO(C₁₋₄ acyl);

SO(C₁₋₄ alkyl), SO(C₁₋₄ alkynyl), SO(C₁₋₄ alkenyl), SO₂(C₁₋₄ acyl);

SO₂(C₁₋₄ alkyl), SO₃(C₁₋₄ alkynyl), SO₃(C₁₋₄ alkenyl), O₃S(C₁₋₄ acyl);

O₃S(C₁₋₄ alkyl), O₃S(C₁₋₄ alkenyl), NH₃, NH(C₁₋₄ alkyl), NH(C₁₋₄ alkenyl),

NH(C₁₋₄ alkynyl), NH(C₁₋₄ acyl), N(C₁₋₄ alkyl)₃, N(C₁₋₄ acyl)₃, wherein alkyl, alkynyl, alkenyl and vinyl are optinally substituted by N₃, CN, one to three halogen (Cl, Br, F, I), NO₃, C(O)O(C₁₋₄ alkyl), C(O)O(C₁₋₄ alkyl).

 $G(O)O(C_{4-4}$ alkynyi), $G(O)O(C_{4-4}$ alkenyi), $O(C_{4-4}$ acyi), $O(C_{4-4}$ alkyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkenyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkenyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkyi), $O(C_{4-4}$ alkyi),

- R³, R⁴ and R⁵ are independently H, halogen including F, Cl, Br, I, OH, OR², SH, SR², NH₂, NHR², NR²₂, lower alkyl of C₁-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₆ such as CF₂ and CH₂CH₂F, lower alkenyl of C₂-C₆ such as CH=CH₂, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₁-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, CO₂H, CO₂R², CONH₂, CONHR², CONR²₂, CH=CHCO₁H, CH=CHCO₂R².
- R² is an optionally substituted alkyl of C₁-C₃₂ (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C₂-C₆; optionally substituted lower alkenyl of C₂-C₆; or optionally substituted acyl:
- R⁶ is an optionally substituted alkyl (including lower alkyl), cyano (CN), CH₃₇

 OCH₃₇, OCH₃CH₃₇, hydroxy methyl (CH₂OH), fluoromethyl (CH₃F), azido
 (N₃), CHCN, CH₂N₃, CH₃NH₂₇, CH₂NHCH₃₇, CH₂N(CH₃)₂, alkyne
 (optionally substituted), or fluoro:

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable carrier.

Claim 65 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a yellow fever virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 5 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 64, wherein

Base is

and R4 is H, R2 is OH, R2 is H, R3 is H, R4 is NH2 or OH, and R6 is H.

Claim 66 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a yellow fever virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 6 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a yellow fever virus infection comprising administering to a host an antivirally effective amount of a (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D or β-L) or its pharmaceutically acceptable salt or prodrug thereof of the structure:

wherein Base is a purine or pyrimidine base:

X is O. S. CH₃, Se, NH, N-alkyl, CHW (R, S. or racemic), C(W)₃, wherein W is F, Cl. Br. or I; and,

R* and R² are independently H, phosphate, including monophosphate; diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid, a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R* or R* is independently H or phosphate; R* and R* can also be linked with cyclic phosphate group and

optionally in a pharmaceutically acceptable carrier.

Claim 67 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a yellow fever virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 7 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 66, wherein

Base is selected from the group consisting of:

Yis Nor CH:

R³, R⁴ and R⁵ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₃, lower alkyl of C₄-C₆, halogenated (F, Cl, Br, I)

lower alkyl of C₁-C₆ such as CF₃ and CH₂CH₃F, lower alkenyl of C₂-C₆ such as CH=CH₂, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₁-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, CO₂H, CO₂R', CONH₂, CONHR', CONR'₂; CH=CHCO₂H, CH=CHCO₂R'; and;

Rhis an optionally substituted alkyl of C_4 - C_{42} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_{63} optionally substituted lower alkenyl of C_2 - C_{63} or optionally substituted acyl-

Claim 68 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a yellow fever virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 8 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 66, wherein

Base is selected from the group consisting of (a) or (b):

and wherein R^4 and R^7 are H_1 R^3 is H_2 and R^4 is NH_2 or OH_1 and R^5 is NH_2 .

Claim 69 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a yellow fever virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 9 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a yellow fever virus infection comprising administering to a host an antivirally effective amount of a (2!R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside $(\beta$ -D or β -L) of the formula:

wherein

Base is

X is O. S. CH₂, Se, NH, N-alkyl, CHW (R, S, or recemic), C(W)₂, wherein W is F, Cl. Br. or I;

R³ and R² are independently H, phosphate, including monophosphate; diphosphate, triphosphate, or a stabilized phosphate prodrug. H phosphonate, including stabilized H phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl. O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of

providing a compound wherein R³ is H or phosphate; R³ is H or phosphate; R⁴ and R³ or R³ can also be linked with cyclic phosphate group;

R² and R² are independently H, C₃₋₄ alkyl, C₃₋₄ alkenyl, C₄₋₄ alkynyl, vinyl, N₃₂ CN. Cl. Br. F. L. NO2 C(O)O(C14 alkyl). C(O)O(C14 alkyl). C(O)O(C14 alkynyl), $C(O)O(C_{k+1}$ alkenyl), $O(C_{k+1}$ acyl), $O(C_{k+1}$ alkyl), $O(C_{k+1}$ alkenyl), $S(C_{1,a} \text{-acv})$, $S(C_{1,a} \text{-alkv})$, $S(C_{1,a} \text{-alkv})$, $S(C_{1,a} \text{-alkenv})$, $SO(C_{1,a} \text{-acv})$, SO(Ci., alkv1), SO(Ci., alkvnv1), SO(Ci., alkenv1), SO(Ci., acv1), $SO_3(C_{4-4}$ -alkyl), $SO_3(C_{4-4}$ -alkynyl), $SO_3(C_{4-4}$ -alkenyl), $O_3S(C_{4-4}$ -acyl), O₂S(C₁₋₄ alkyl), O₂S(C₁₋₄ alkenyl), NH₂, NH(C₁₋₄ alkyl), NH(C₁₋₄ alkenyl), NH(CLankvnvl), NH(CLancvl), N(CLanckvl)a, N(CLancvl)a, wherein alkyl, alkynyl, alkenyl and vinyl are optinally substituted by Na, CN, one to three halogen (Cl., Br., F. I), NO₃, C(O)O(C₄₋₄ alkyl), C(O)O(C₄₋₄ alkyl); $C(O)O(C_{4\rightarrow}$ alkynyl), $C(O)O(C_{4\rightarrow}$ alkenyl), $O(C_{4\rightarrow}$ acyl), $O(C_{4\rightarrow}$ alkyl), O(C1.4 alkenyl), S(C1.4 acyl), S(C1.4 alkyl), S(C1.4 alkynyl), S(C1.4 alkenvi) SO(Caracvi) SO(Caralkvi) SO(Caralkvnvi) SO(Car alkenvi); SO₂(C₁₋₁ acvi); SO₂(C₁₋₁ alkvi); SO₂(C₁₋₁ alkvivi); SO₂(C₁₋₄ alkenyl), O2S(C2.4 acvl), O2S(C2.4 alkvl), O2S(C3.4 alkenyl), NH2; NH(C3.4 alkyl), NH(CL, alkenyl), NH(CL, alkynyl), NH(CL, acyl), N(CL, alkyl);; N(C_{1,4} acvl): OR⁷: R² and R² can be linked together to form a vinvl optionally substituted by one or two of No. CN. Cl. Br. F. L. NOo:

R³ and R⁴ are independently H₂ halogen including F₂ Cl₂ Br₃ I₄ OH₄ OR², SH₄ SR², NH₂, NHR², NR²₂, lower alkyl of C₄-C₆, halogenated (F₂ Cl₃ Br₄) lower alkyl of C₄-C₆ such as CH=CH₂, halogenated (F₂ Cl₃ Br₄) lower alkenyl of C₄-C₆ such as CH=CHCl₄ CH=CHBr and CH=CHI₄ lower alkynyl of C₄-C₆ such as C=CH₄ halogenated (F₁ Cl₃ Br₄) lower alkynyl of C₄-C₆, lower alkoxy of C₄-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F₁ Cl₃ Br₄) lower alkoxy of C₄-C₆, CO₂H₄-CO₃R², CONH₂, CONHR², CONR²₃, CH=CHCO₂H₄-CH₄-CHCO₃R².

R' is an optionally substituted alkyl of C_1 - C_{32} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_{63} optionally substituted lower alkenyl of C_2 - C_{63} or optionally substituted acyl.

R⁶ is an optionally substituted alkyl (including lower alkyl), eyano (CN), CH₃;

OCH₃, OCH₂CH₃, hydroxy methyl (CH₂OH), fluoromethyl (CH₂F), azido
(N₃), CHCN, CH₂N₃, CH₂NH₂, CH₂NHCH₃, CH₂N(CH₃)₃, alkyne
(optionally substituted), or fluoro;

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable carrier.

Claim 70 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a yellow fever virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 10 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a yellow fever virus infection comprising administering to a host an antivirally effective amount of a (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D or β-L) of the formula:

wherein

Base is

R* and R* are independently H, phosphate, including monophosphate; diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl; O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid, a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R* or R* is independently H or phosphate; R* and R* can also be linked with cyclic phosphate group;

R³ and R⁴ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₄-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₄-C₆ such as CH=CH₂, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₃-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₃-C₆, lower alkoxy of C₄-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₆, such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₆, CO₂H, CO₂R', CONH₂, CONHR', CONR'₂, CH=CHCO₂H, CH=CHCO₂R'.

R' is an optionally substituted alkyl of C_1 - C_{12} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_{67} optionally substituted lower alkenyl of C_2 - C_{67} or optionally substituted acyl;

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable carrier.

Claim 71 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a yellow fever virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 11 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a yellow fever virus infection comprising administering to a host an antivirally effective amount of a (2¹R)-2¹-deoxy-2¹-fluoro-2¹-C-methyl nucleoside (β-D) or its pharmaceutically acceptable salt or produig thereof of the formula:

optionally in a pharmaceutically acceptable carrier.

Claims 72-75 (Canceled).

Claim 76 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a West Nile virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 1 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

a (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D-or-β-L) of the formula:

wherein

Base is a purine or pyrimidine base;

X is O₇ S₇ CH₂₇ Se₇ NH₇ N-alkyl₇ CHW (*R*, *S*₇ or racemic), C(W)₂₇ wherein W is F₇ Cl. Br. or I;

R⁴ and R³ are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid; including a phospholipid, an L or D amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R⁴ is H or phosphate; R² is H or phosphate; R³ and R² or R² can also be linked with cyclic phosphate group;

 R^2 and R^2 are independently H, $C_{4,4}$ alkyl, $C_{4,4}$ alkenyl, $C_{4,4}$ alkynyl, vinyl, N_{37} CN_{7} Cl_{7} Br_{7} F_{7} I_{7} NO_{20} $C(O)O(C_{4,4}$ alkyl), $C(O)O(C_{4,4}$ alkyl), $C(O)O(C_{4,4}$ alkenyl), $O(C_{4,4}$ alkenyl), $O(C_{4,4}$ alkenyl), $O(C_{4,4}$ alkenyl), $O(C_{4,4}$ alkenyl), $O(C_{4,4}$ alkyl), $O(C_{4,4}$ alkyl), O

alkyl, alkynyl, alkenyl and vinyl are optinally substituted by N_3 , CN_1 , one to three halogen (Cl_1 , Br_1 , F_1), NO_2 , $C(O)O(C_{1,4}$ alkyl), $C(O)O(C_{1,4}$ a

R⁶ is an optionally substituted alkyl (including lower alkyl), cyano (CN), CH₃;

OCH₄, OCH₂CH₃, hydroxy methyl (CH₂OH), fluoromethyl (CH₂F), azido
(N₃), CHCN, CH₂N₃, CH₂NH₂, CH₂NHCH₃, CH₂N(CH₃)₃, alkyne
(optionally substituted), or fluoro:

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable carrier.

Claim 77 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a West Nile virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 2 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 76:

wherein Base is selected from the group consisting of

Yis Nor CH

R³, R⁴ and R⁵ are independently H, halogen including F, Cl, Br, I, OH, OR., SH, SR., NH₂, NHR., NR₂, lower alkyl of C₁-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₆ such as CF₂ and CH₂CH₂F, lower alkenyl of C₂-C₆ such as CH-CH₂, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆ such as CH-CHCl, CH-CHBr and CH-CHI, lower alkynyl of C₂-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₄-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₆, CO₂H, CO₂R², CONH₂, CONHR², CONR²₂, CH=CHCO₂H, CH=CHCO₂R², and

R' is an optionally substituted alkyl of C_1 - C_{12} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_6 ; optionally substituted lower alkenyl of C_2 - C_6 ; or optionally substituted acyl:

Claim 78 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a West Nile virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 3 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 76, wherein

Base is selected from the group consisting of (a) or (b):

and wherein R* is H, R* is OH, R* is H, R* is H, and R* is NH2 or OH, and R* is NH2.

Claim 79 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a West Nile virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 4 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a West Nile virus infection comprising administering to a host an antivirally effective amount of a (2!R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside $(\beta$ -D) of the formula:

wherein

Base is selected from the group consisting of

Yis Nor CH;

R* and R* are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug, H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and

benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an Lor D-amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R^k is H or phosphate; R^k is H or phosphate; R^k and R^k or R^k can also be linked with cyclic phosphate group;

R2 and R2 are independently H, C1.4 alkyl, C1.4 alkenyl, C1.4 alkynyl, vinyl, N3; $CN_{-}Cl_{-}Br_{-}F_{-}I_{-}NO_{2-}C(O)O(C_{4-4}alkvl), C(O)O(C_{4-4}alkvl), C(O)O(C_{4-4}a$ alkynyl), $C(O)O(C_{1,4}$ alkenyl), $O(C_{1,4}$ acyl), $O(C_{1,4}$ alkyl), $O(C_{1,4}$ alkenyl), S(Caladevi), S(Caladikvi), S(Caladikvnvi), S(Caladikenvi), SO(Caladevi), SO(Cala alkyl), SO(Cala alkynyl), SO(Cala alkenyl), SO(Cala acyl), $SO_2(C_{4-\epsilon}alkyl)$, $SO_2(C_{4-\epsilon}alkynyl)$, $SO_2(C_{4-\epsilon}alkenyl)$, $O_3S(C_{4-\epsilon}acyl)$, $O_3S(C_{1-\epsilon}alkyl)$, $O_3S(C_{1-\epsilon}alkenyl)$, NH_2 , $NH(C_{1-\epsilon}alkyl)$, $NH(C_{1-\epsilon}alkenyl)$. NH(CL_ralkynyl), NH(CL_racyl), N(CL_ralkyl), N(CL_racyl), wherein alkyl, alkynyl, alkenyl and vinyl are optinally substituted by No. CN, one to three halogen (Cl. Br. F. I). NO2_C(O)O(C3_4alkyl). C(O)O(C3_4alkyl): $C(O)O(C_{1-4}alkvnvl)$, $C(O)O(C_{1-4}alkenvl)$, $O(C_{1-4}aevl)$, $O(C_{1-4}alkvl)$, $O(C_{1-}alkenvl)$, $S(C_{1-}aevl)$, $S(C_{1-}alkvl)$, $S(C_{1-}alkvnvl)$, $S(C_{1-}alkvnvl)$ alkenyl), SO(Ci., acyl), SO(Ci., alkyl), SO(Ci., alkynyl), SO(Ci., alkenvi), SO₂(C_{1,1} acvi), SO₂(C_{1,4} alkvi), SO₂(C_{1,4} alkvnvi), SO₂(C_{1,4} alkenyl), OaS(Caracyl), OaS(Caralkyl), OaS(Caralkenyl), NH2, NH(Cara alkyl), NH(C4.4 alkenyl), NH(C4.4 alkynyl), NH(C4.4 acyl), N(C4.4 alkyl); N(C_{1-r}acyl)₂, OR⁷: R² and R² can be linked together to form a vinyl optionally substituted by one or two of Na, CN, Cl. Br. F. L NO2:

R³, R³ and R³ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₁-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₆ such as CF₃ and CH₂CH₂F, lower alkenyl of C₂-C₆ such as CH=CH₂, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆ such as

C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₄-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₆, CO₂H, CO₂R¹, CONH₂, CONHR², CONR²₂;
CH=CHCO₂H, CH=CHCO₂R²;

R' is an optionally substituted alkyl of C_1 - C_{12} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_6 ; optionally substituted lower alkenyl of C_2 - C_6 ; or optionally substituted acyl:

R⁶ is an optionally substituted alkyl (including lower alkyl), cyano (CN), CH₂,

OCH₃, OCH₂CH₃, hydroxy methyl (CH₂OH), fluoromethyl (CH₂F), azido

(N₃), CHCN, CH₂N₃, CH₂NH₂, CH₂NHCH₃, CH₂N(CH₃)₂, alkyne

(optionally substituted), or fluoro:

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable carrier.

Claim 80 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a West Nile virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 5 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 79, wherein

Base is

and R^3 is H, R^2 is OH, R^3 is H, R^3 is H, R^4 is NH_2 or OH, and R^6 is H.

Claim 81 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a West Nile virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 6 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a West-Nile virus infection comprising administering to a host an antivirally effective amount of a (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D or β-L) or its pharmaceutically acceptable salt or prodrug thereof of the structure:

wherein Base is a purine or pyrimidine base;

X-is-O₇-S₇-CH₂₇-Se₇-NH₂-N-alkyl₇-CHW (R₇-S₇-or-racemic); C(W)₂₇-wherein-W-is-F₇-Cl₂-Br₂-or-L-and₂

R⁴ and R² are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D amino acid, a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R⁴ or R² is independently H or phosphate; R⁴ and R² can also be linked with cyclic phosphate group, and optionally a pharmaceutically acceptable carrier.

Claim 82 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a West Nile virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 7 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim \$1, wherein

Base is selected from the group consisting of:

Yis Nor CH:

R², R³ and R⁵ are independently H, halogen including F, Cl, Br, I, OH, OR.', SH, SR.', NH₂, NHR.', NR.'₂, lower alkyl of C₁-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₆ such as CF₂ and CH₂CH₂F, lower alkenyl of C₂-C₆ such as CH=CHCl, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆, such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₁-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, CO₃H, CO₃R.', CONH₂, CONHR.', CONR'₂, CH=CHCO₂H, CH=CHCO₂R.', and,

R' is an optionally substituted alkyl of C_1 - C_{k2} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_6 ; optionally substituted lower alkenyl of C_2 - C_6 ; or optionally substituted acyl:

Claim 83 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a West Nile virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 8 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim \$1, wherein

Base is selected from the group consisting of (a) or (b):

and wherein R^4 and R^7 are H_1 R^3 is H_2 and R^4 is NH_2 or OH_1 and R^5 is NH_{27}

Claim 84 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a West Nile virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 9 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a West-Nile virus infection comprising administering to a host an antivirally effective amount of a (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (6-D or 6-L) of the formula:

wherein

Base is

X is O, S, CH₂, Se, NH, N-alkyl, CHW (R, S, or racemic), C(W)₂, wherein W is F, Cl. Br. or I.

R* and R* are independently H, phosphate, including monophosphate; diphosphate, triphosphate, or a stabilized phosphate prodrug. H phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R* is H or phosphate; R* is H or phosphate; R* and R* or R* can also be linked with cyclic phosphate group;

R³ and R³ are independently H, C₁₋₁ alkyl, C₁₋₁ alkenyl, C₁₋₁ alkynyl, vinyl, N₃;

GN, Cl, Br, F, I, NO₂, C(O)O(C₁₋₁ alkyl), C(O)O(C₁₋₁ alkyl), C(O)O(C₁₋₁

alkynyl), C(O)O(C₁₋₁ alkenyl), O(C₁₋₁ acyl), O(C₁₋₁ alkyl), O(C₁₋₁ alkenyl),

S(C₁₋₁ acyl), S(C₁₋₁ alkyl), S(C₁₋₁ alkynyl), S(C₁₋₁ alkenyl), SO(C₁₋₁ acyl),

SO(C₁₋₁ alkyl), SO(C₁₋₁ alkynyl), SO(C₁₋₁ alkenyl), SO₂(C₁₋₁ acyl),

SO₂(C₁₋₁ alkyl), SO₃(C₁₋₁ alkynyl), SO₃(C₁₋₁ alkenyl), O₃S(C₁₋₁ acyl),

O₃S(C₁₋₁ alkyl), O₃S(C₁₋₁ alkenyl), NH₂, NH(C₁₋₁ alkyl), NH(C₁₋₁ alkenyl),

NH(C₁₋₁ alkynyl), NH(C₁₋₁ acyl), N(C₁₋₁ alkyl)₂, N(C₁₋₁ acyl)₂, wherein alkyl, alkynyl, alkenyl and vinyl are optinally substituted by N₃, GN, one to three halogen (Cl, Br, F, I), NO₂ C(O)O(C₁₋₁ alkyl), C(O)O(C₁₋₁ alkyl).

 $C(O)O(C_{4-4}$ alkynyi), $C(O)O(C_{4-4}$ alkenyi), $O(C_{4-4}$ acyi), $O(C_{4-4}$ alkyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkenyi), $O(C_{4-4}$ alkyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkenyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkyi), $O(C_{4-4}$ alkyi), O

- R³ and R⁴ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₄-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₄-C₆ such as CH₂CH₂F, lower alkenyl of C₂-C₆ such as CH=CH₂, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkowy of C₄-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkowy of C₄-C₆, such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkowy of C₄-C₆, CO₂H, CO₂R', CONH₂, CONHR', CONR'₂, CH=CHCO₂H, CH=CHCO₂R', and,
- Rhis an optionally substituted alkyl of C_1 - C_{32} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_{67} optionally substituted lower alkenyl of C_2 - C_{67} or optionally substituted acyl.
- R⁶ is an optionally substituted alkyl (including lower alkyl), cyano (CN), CH₃;

 OCH₂, OCH₂CH₃, hydroxy methyl (CH₂OH), fluoromethyl (CH₂F), azido
 (N₂), CHCN, CH₂N₄, CH₂NH₂, CH₂NHCH₃, CH₂N(CH₃)₂, alkyne
 (optionally substituted), or fluoro;

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable carrier.

Claim 85 (Withdrawn; Currently Amended): <u>A method for the treatment or prophylaxis</u> of a West Nile virus infection comprising administering to a host an antivirally effective amount

of the nucleoside of claim 10 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a West-Nile virus infection comprising administering to a host an antivirally effective amount of a (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D or β-L) of the formula:

wherein

Base is

R* and R² are independently H, phosphate, including monophosphate; diphosphate, triphosphate, or a stabilized phosphate prodrug, H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid, a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R* or R² is independently H or phosphate; R* and R² can also be linked with cyclic phosphate group;

R³ and R⁴ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₄-C₆, halogenated (F, Cl, Br, I) lower

alkyl of C_1 - C_6 such as CF_3 and CH_2CH_2F , lower alkenyl of C_2 - C_6 such as $CH=CH_3$, halogenated (F,Cl,Br,1) lower alkenyl of C_2 - C_6 such as CH=CHCl,CH=CHBr and CH=CHI, lower alkynyl of C_2 - C_6 such as C=CH, halogenated (F,Cl,Br,1) lower alkynyl of C_2 - C_6 , lower alkoxy of C_4 - C_6 such as CH_2OH and CH_2CH_2OH , halogenated (F,Cl,Br,1) lower alkoxy of C_4 - C_6 , CO_2H , CO_2R^2 , $CONH_2$, $CONHR^2$, $CONR^2$, $CH=CHCO_2H$, $CH=CHCO_2R^2$.

R¹ is an optionally substituted alkyl of C₁-C₁₂ (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C₂-C₆, optionally substituted lower alkenyl of C₂-C₆, or optionally substituted acyl-

or its pharmaceutically acceptable salt or prodrug thereof; optionally in a pharmaceutically acceptable carrier.

Claim 86 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a West Nile virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 11 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a West-Nile virus infection comprising administering to a host an antivirally effective amount of a (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (B-D) or its pharmaceutically acceptable salt or produce thereof of the formula:

optionally in a pharmaceutically acceptable carrier.

Claims 87-90 (Canceled).

Claim 91 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a Dengue virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 1 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

a (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D-or β-L) of the formula:

wherein

Base is a purine or pyrimidine base:

X is O. S. CH₃, Se, NH, N-alkyl, CHW (R, S, or racemic), C(W)₂, wherein W is F, Cl. Br. or I;

R* and R* are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R* is H or phosphate; R* is H or

phosphate; R* and R* or R* can also be linked with cyclic phosphate group;

R² and R² are independently H. C., alkyl. C., alkenyl. C., alkynyl. vinyl. No. CN. Cl. Br. F. I. NOx.C(O)O(Cx.aalkvl). C(O)O(Cx.aalkvl). C(O)O(Cx.a alkynyl), $C(O)O(C_{1,4}$ alkenyl), $O(C_{3,4}$ acyl), $O(C_{4,4}$ alkyl), $O(C_{4,4}$ alkenyl), $S(C_{k-1} \text{-} \text{aev} i)$, $S(C_{k-1} \text{-} \text{alkv} i)$; $S(C_{k-1} \text{-} \text{alkv} \text{nv} i)$; $S(C_{k-1} \text{-} \text{alkv} \text{nv} i)$; $SO(C_{3-3} \text{-alkyl})$, $SO(C_{3-3} \text{-alkynyl})$, $SO(C_{3-3} \text{-alkenyl})$, $SO_3(C_{3-3} \text{-acyl})$. SO₂(C_{1,4} alkvl), SO₂(C_{1,4} alkvnvl), SO₂(C_{1,4} alkenvl), O₃S(C_{1,4} acvl), $O_3S(C_{4-4}$ -alkyl), $O_3S(C_{4-4}$ -alkenyl), NH_2 , $NH(C_{4-4}$ -alkyl), $NH(C_{4-4}$ -alkenyl), NH(CL, alkynyl), NH(CL, acyl), N(CL, alkyl), N(CL, acyl), wherein alkyl, alkynyl, alkenyl and vinyl are optinally substituted by Na, CN, one to three halogen (Cl. Br. F. I). NO₃ C(O)O(C_{3,4} alkyl). C(O)O(C_{4,4} alkyl). $C(O)O(C_{4-4}alkvnvl)$; $C(O)O(C_{4-4}alkenvl)$; $O(C_{4-4}aevl)$; $O(C_{4-4}alkvl)$; $O(C_{1-\epsilon} alkenyl)$; $S(C_{1-\epsilon} acyl)$; $S(C_{1-\epsilon} alkyl)$; $S(C_{1-\epsilon} alkynyl)$; $S(C_{1-\epsilon} alkynyl)$; alkenyl), SO(Ci., acvl), SO(Ci., alkvl), SO(Ci., alkvnvl), SO(Ci., alkenvi). SO:(C_4 acvi). SO:(C_4 alkvi). SO:(C_4 alkvivi). SO:(C_4 alkenyl), OaS(Calacyl), OaS(Calalkyl), OaS(Calalkenyl), NH2, NH(Cala alkyl), NH(Caralkenyl), NH(Caralkynyl), NH(Caracyl), N(Caralkyl); N(C_{1-x} acvi)₂, OR², R² and R² can be linked together to form a vinvl optionally substituted by one or two of Na, CN, Cl. Br. F. I. NO.:

R⁶ is an optionally substituted alkyl (including lower alkyl), cyano (CN), CH₃;

OCH₂, OCH₂CH₂, hydroxy-methyl (CH₂OH), fluoromethyl (CH₂F), azido
(N₂), CHCN, CH₂N₃, CH₂NH₂, CH₂NHCH₃, CH₂N(CH₃)₃, alkyne
(optionally substituted), or fluoro;

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable carrier.

Claim 92 (Withdrawn; Currently Amended): <u>A method for the treatment or prophylaxis</u> of a Dengue virus infection comprising administering to a host an antivirally effective amount of

the nucleoside of claim 2 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 91;

wherein Base is selected from the group consisting of

Yis Nor CH.

R³, R⁴ and R⁵ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₃, NHR', NR'₃, lower alkyl of C₄-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₄-C₆ such as CF₂ and CH₂CH₂F, lower alkenyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₄-C₆, such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₆, such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₆, CO₂H, CO₂R', CONH₂, CONHR', CONR'₂, CONH₃, CONHR', CONR'₂,

R' is an optionally substituted alkyl of C_1 - C_{42} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_6 ; optionally substituted lower alkenyl of C_2 - C_6 ; or optionally substituted acyl.

Claim 93 (Withdrawn; Currently Amended): <u>A method for the treatment or prophylaxis</u> of a Dengue virus infection comprising administering to a host an antivirally effective amount of

the nucleoside of claim 3 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 91, wherein

Base is selected from the group consisting of (a) or (b):

and wherein R^4 is H, R^2 is OH, R^2 is H, R^3 is H, and R^4 is NH_2 or OH, and R^5 is NH_2 .

Claim 94 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a Dengue virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 4 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a Dengue virus infection comprising administering to a host an antivirally effective amount of a (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D) of the formula:

wherein

Base is selected from the group consisting of

Yis Nor CH;

R* and R² are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug. H phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R* is H or phosphate, R² is H or phosphate, R* and R* or R* can also be linked with cyclic phosphate group;

R³ and R³ are independently H, C₁₋₁ alkyl, C₁₋₁ alkenyl, C₁₋₁ alkynyl, vinyl, N₃;

CN, Cl, Br, F, I, NO₂, C(O)O(C₁₋₁ alkyl), C(O)O(C₁₋₁ alkyl), C(O)O(C₁₋₁ alkynyl), C(O)O(C₁₋₁ alkenyl), O(C₁₋₁ alkyl), O(C₁₋₁ alkenyl), S(C₁₋₁ alkyl), O(C₁₋₁ alkenyl), S(C₁₋₁ alkyl), SO(C₁₋₁ alkyl), SO(C₁₋₁ alkyl), SO(C₁₋₁ alkyl), SO₂(C₁₋₁ acyl), SO₂(C₁₋₁ alkyl), SO₂(C₁₋₁ alkyl), SO₂(C₁₋₁ alkyl), SO₂(C₁₋₁ alkyl), O₁S(C₁₋₁ acyl), O₂S(C₁₋₁ alkyl), O₃S(C₁₋₁ alkenyl), NH₂, NH(C₁₋₁ alkyl), NH(C₁₋₁ alkenyl), NH(C₁₋₁ alkenyl), NH(C₁₋₁ alkynyl), NH(C₁₋₁ alkynyl), NH(C₁₋₁ alkynyl), NH(C₁₋₁ alkynyl), NH(C₁₋₁ alkynyl), NH₂, CN, one to three halogen (Cl, Br, F, I), NO₂, C(O)O(C₁₋₁ alkyl), C(O)O(C₁₋₁ alkyl).

 $G(O)O(C_{4-4}$ alkynyi), $G(O)O(C_{4-4}$ alkenyi), $O(C_{4-4}$ acyi), $O(C_{4-4}$ alkyi), $O(C_{4-4}$ alkynyi), $O(C_{4-4}$ alkyi), $O(C_{4-4}$ alkyi),

- R³, R⁴ and R⁵ are independently H, halogen including F, Cl, Br, I, OH, OR², SH, SR², NH₂, NHR², NR²₂, lower alkyl of C₁-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₁-C₆ such as CH₂CH₂F, lower alkenyl of C₂-C₆ such as CH=CH₂, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₁-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, CO₂H, CO₂R², CONH₂, CONHR², CONR²₂, CH=CHCO₁H, CH=CHCO₂R².
- R² is an optionally substituted alkyl of C₁-C₃₂ (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C₂-C₆; optionally substituted lower alkenyl of C₂-C₆; or optionally substituted acyl:
- R⁶ is an optionally substituted alkyl (including lower alkyl), cyano (CN), CH₃₇

 OCH₃₇, OCH₃CH₃₇, hydroxy methyl (CH₂OH), fluoromethyl (CH₃F), azido
 (N₃), CHCN, CH₂N₃, CH₃NH₂₇, CH₂NHCH₃₇, CH₂N(CH₃)₂, alkyne
 (optionally substituted), or fluoro:

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable carrier.

Claim 95 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a Dengue virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 5 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 94, wherein

Base is

and R4 is H, R2 is OH, R2 is H, R3 is H, R4 is NH2 or OH, and R6 is H.

Claim 96 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a Dengue virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 6 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a Dengue virus infection comprising administering to a host an antivirally effective amount of a (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D or β-L) or its pharmaceutically acceptable salt or prodrug thereof of the structure:

wherein Base is a purine or pyrimidine base:

X is O. S. CH₃, Se, NH, N-alkyl, CHW (R, S. or racemic), C(W)₃, wherein W is F, Cl. Br. or I; and,

R* and R* are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid, a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R* or R* is independently H or phosphate; R* and R* can also be linked with cyclic phosphate group, and optionally a pharmaceutically acceptable carrier:

Claim 97 (Withdrawn; Currently Amended): <u>A method for the treatment or prophylaxis</u> of a Dengue virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 7 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 96, wherein

Base is selected from the group consisting of:

R³, R³ and R³ are independently H, halogen including F, Cl. Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₃, lower alkyl of C₄-C₆, halogenated (F, Cl. Br, I)

lower alkyl of C₁-C₆ such as CF₃ and CH₂CH₃F, lower alkenyl of C₂-C₆ such as CH=CH₂, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₆, lower alkoxy of C₁-C₆ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₁-C₆, CO₂H, CO₂R², CONH₂, CONHR², CONR²₂, CH=CHCO₂H, CH=CHCO₂R², and;

Rhis an optionally substituted alkyl of C_4 - C_{42} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_{63} optionally substituted lower alkenyl of C_2 - C_{63} or optionally substituted acyl-

Claim 98 (Withdrawn; Currently Amended): <u>A method for the treatment or prophylaxis</u> of a Dengue virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 8 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

The method of claim 96, wherein

Base is selected from the group consisting of (a) or (b):

and wherein R^* and R^* are H_1 R^* is H_2 and R^4 is NH_2 or OH_1 and R^5 is NH_2 .

Claim 99 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a Dengue virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 9 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a Dengue virus infection comprising administering to a host an antivirally effective amount of a (2!R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside $(\beta$ -D or β -L) of the formula:

wherein

Base is

X is O. S. CH₂, Se, NH, N-alkyl, CHW (R, S, or recemic), C(W)₂, wherein W is F, Cl. Br. or I;

R* and R* are independently H, phosphate, including monophosphate; diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl. O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an t. or D-amino acid (or racemic mixture), a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of

providing a compound wherein R³ is H or phosphate; R³ is H or phosphate; R⁴ and R³ or R³ can also be linked with cyclic phosphate group;

 R^2 and R^2 are independently H, $C_{1,4}$ alkyl, $C_{1,4}$ alkenyl, $C_{1,4}$ alkynyl, vinyl, N_{35} CN. Cl. Br. F. L. NO. C(O)O(Ca.aalkvl). C(O)O(Ca.aalkvl). C(O)O(Ca.aalkvl). C(O)O(Ca.aa alkynyl), C(O)O(C_{1-x} alkenyl), O(C_{1-x} acyl), O(C_{1-x} alkyl), O(C_{1-x} alkenyl), $SO(C_{3,4} \text{-alkyl})$, $SO(C_{3,4} \text{-alkynyl})$, $SO(C_{3,4} \text{-alkenyl})$, $SO_2(C_{3,4} \text{-acyl})$, SO₂(C_{1,4} alkvl), SO₂(C_{1,4} alkvnvl), SO₂(C_{1,4} alkenvl), O₄S(C_{1,4} acvl), O₃S(C₄₋₄-alkyl), O₃S(C₄₋₄-alkenyl), NH₃, NH(C₄₋₄-alkyl), NH(C₄₋₄-alkenyl), NH(C₁₋₁ alkynyl), NH(C₁₋₁ acyl), N(C₁₋₁ alkyl)₂, N(C₁₋₁ acyl)₂, wherein alkyl, alkynyl, alkenyl and vinyl are optinally substituted by Na, CN, one to three halogen (Cl. Br. F. I), NO₂, C(O)O(C₄₋₄alkyl), C(O)O(C₄₋₄alkyl); $C(O)O(C_{k+1}alkvnyl)$, $C(O)O(C_{k+1}alkenyl)$, $O(C_{k+1}acyl)$, $O(C_{k+1}alkyl)$, $O(C_{1-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{1-4}$ alkynyl), $S(C_{1-4}$ alkenyl), SO(C4.4 acyl), SO(C4.4 alkyl), SO(C4.4 alkynyl), SO(C4.4 alkenyl); SO:(C1.1 acvl); SO:(C1.1 alkvl); SO:(C1.2 alkvnvl); SO:(C1.4 alkenyl), O₂S(C₃₋₄ acyl), O₂S(C₃₋₄ alkyl), O₂S(C₃₋₄ alkenyl), NH₂, NH(C₃₋₄ alkyl), NH(Ca., alkenyl), NH(Ca., alkynyl), NH(Ca., acyl), N(Ca., alkyl), N/C_{1...} acv1_{3.} OR²: R² and R² can be linked together to form a vinvl optionally substituted by one or two of Na, CN, Cl. Br. F. I. NO.:

R³ and R⁴ are independently H, halogen including F, Cl, Br, I, OH, OR¹, SH, SR¹, NH₂, NHR¹, NR¹₂, lower alkyl of C₃-C₅, halogenated (F, Cl, Br, I) lower alkyl of C₃-C₅ such as CF₂ and CH₂CH₂F, lower alkenyl of C₂-C₅ such as CH=CH₂, halogenated (F, Cl, Br, I) lower alkenyl of C₂-C₅ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₂-C₅ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₂-C₅, lower alkoxy of C₃-C₅ such as CH₂OH and CH₂CH₂OH, halogenated (F, Cl, Br, I) lower alkoxy of C₃-C₅. CO₂H₂-CO₂H₂-CONH₂-CONHR⁻-CONR⁻₃; CH=CHCO₂H-CH=CHCO₂R⁻-cond-:

R' is an optionally substituted alkyl of C_1 - C_{32} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_{63} optionally substituted lower alkenyl of C_2 - C_{63} or optionally substituted acyl.

R⁶ is an optionally substituted alkyl (including lower alkyl), eyano (CN), CH₃;

OCH₃, OCH₂CH₃, hydroxy methyl (CH₂OH), fluoromethyl (CH₂F), azido
(N₃), CHCN, CH₂N₃, CH₂NH₂, CH₂NHCH₃, CH₂N(CH3)₂, alkyne
(optionally substituted), or fluoro;

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable carrier.

Claim 100 (Withdrawn; Currently Amended): A method for the treatment or prophylaxis of a Dengue virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 10 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a Dengue virus infection comprising administering to a host an antivirally effective amount of a (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β-D or β-L) of the formula:

wherein

Base is

R* and R* are independently H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug. H-phosphonate, including stabilized H-phosphonates, acyl, including optionally substituted phenyl and lower acyl, alkyl, including lower alkyl, O-substituted carboxyalkylamino or its peptide derivatives, sulfonate ester, including alkyl or arylalkyl sulfonyl, including methanesulfonyl and benzyl, wherein the phenyl group is optionally substituted, a lipid, including a phospholipid, an L or D-amino acid, a carbohydrate, a peptide, a cholesterol, or other pharmaceutically acceptable leaving group which when administered in vivo is capable of providing a compound wherein R* or R* is independently H or phosphate; R* and R* can also be linked with cyclic phosphate group;

R³ and R⁴ are independently H, halogen including F, Cl, Br, I, OH, OR', SH, SR', NH₂, NHR', NR'₂, lower alkyl of C₄-C₆, halogenated (F, Cl, Br, I) lower alkyl of C₄-C₆ such as CF₂ and CH₂CH₂F, lower alkenyl of C₂-C₆ such as CH=CH₃, halogenated (F, Cl, Br, I) lower alkenyl of C₃-C₆ such as CH=CHCl, CH=CHBr and CH=CHI, lower alkynyl of C₃-C₆ such as C=CH, halogenated (F, Cl, Br, I) lower alkynyl of C₃-C₆, lower alkoxy of C₄-C₆ such as CH₂OH and CH₃CH₃OH, halogenated (F, Cl, Br, I) lower alkoxy of C₄-C₆, CO₂H, CO₂R', CONH₂, CONHR', CONR'₃, CH=CHCO₂H, CH=CHCO₂R'.

R' is an optionally substituted alkyl of C_1 - C_{12} (particularly when the alkyl is an amino acid residue), cycloalkyl, optionally substituted alkynyl of C_2 - C_{67} optionally substituted lower alkenyl of C_2 - C_{67} or optionally substituted acyl.

or its pharmaceutically acceptable salt or prodrug thereof, optionally in a pharmaceutically acceptable carrier.

Claim 101 (Withdrawn; Currently Amended): <u>A method for the treatment or prophylaxis</u> of a Dengue virus infection comprising administering to a host an antivirally effective amount of the nucleoside of claim 11 or its pharmaceutically acceptable salt or prodrug optionally in a pharmaceutically acceptable carrier.

A method for the treatment or prophylaxis of a Dengue virus infection comprising administering to a host an antivirally effective amount of a (2¹R)-2¹-deoxy-2¹-fluoro-2¹-C-methyl nucleoside (B-D) or its pharmaceutically acceptable salt or produce thereof of the formula:

optionally in a pharmaceutically acceptable carrier.

Claims 102-105 (Canceled).

Claim 106 (Withdrawn; Currently Amended): The method of 31, wherein the antivirally effective amount of (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl the nucleoside is administered in combination or alternation with at least one treatment selected from the group consisting of: interferon, including interferon alpha 2a, interferon alpha 2b, a pegylated interferon, interferon beta, interferon gamma, interferon tau and interferon omega; an interleukin, including interleukin 10 and interleukin 12; ribavirin; interferon alpha or pegylated interferon alpha in combination with ribavirin or levovirin; levovirin; a protease inhibitor including an NS3

inhibitor, a NS3-4A inhibitor; a helicase inhibitor; a polymerase inhibitor including HCV RNA polymerase and NS5B polymerase inhibitor; gliotoxin; an IRES inhibitor; and antisense oligonucleotide; a thiazolidine derivative; a benzanilide, a ribozyme; another nucleoside, nucleoside prodrug or nucleoside derivative; a 1-amino-alkylcyclohexane; an antioxidant including vitamin E; squalene; amantadine; a bile acid; N-(phosphonoacetyl)-L-aspartic acid; a benzenedicarboxamide; polyadenylic acid; a benzimidazoles; thymosin; a beta tubulin inhibitor; a prophylactic vaccine; an immune modulator, an IMPDH inhibitor; silybin-phosphatidylcholine phytosome; and mycophenolate.

Claim 107 (Withdrawn; Currently Amended): The method of 41, wherein the antivirally effective amount of (2^tR)-2^t-deoxy-2^t-fluoro-2^t-C-methyl the nucleoside is administered in combination or alternation with at least one treatment selected from the group consisting of: interferon, including interferon alpha 2a, interferon alpha 2b, a pegylated interferon, interferon beta, interferon gamma, interferon tau and interferon omega; an interleukin, including interleukin 10 and interleukin 12; ribavirin; interferon alpha or pegylated interferon alpha in combination with ribavirin or levovirin; levovirin; a protease inhibitor including an NS3 inhibitor, a NS3-4A inhibitor; a helicase inhibitor; a polymerase inhibitor including HCV RNA polymerase and NS5B polymerase inhibitor; gliotoxin; an IRES inhibitor; and antisense oligonucleotide; a thiazolidine derivative; a benzanilide, a ribozyme; another nucleoside, nucleoside prodrug or nucleoside derivative; a 1-amino-alkylcyclohexane; an antioxidant including vitamin E; squalene; amantadine; a bile acid; N-(phosphonoacetyl)-L-aspartic acid; a benzenedicarboxamide; polyadenylic acid; a benzimidazoles; thymosin; a beta tubulin inhibitor; a prophylactic vaccine; an immune modulator, an IMPDH inhibitor; silybin-phosphatidylcholine phytosome; and mycophenolate.

Claims 108-109 (Canceled).

Claim 110 (Withdrawn; Currently Amended): The method of 46, wherein the antivirally effective amount of (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl the nucleoside is administered in combination or alternation with at least one treatment selected from the group consisting of: interferon, including interferon alpha 2a, interferon alpha 2b, a pegylated interferon, interferon beta, interferon gamma, interferon tau and interferon omega; an interleukin, including interleukin 10 and interleukin 12; ribavirin; interferon alpha or pegylated interferon alpha in combination with ribavirin or levovirin; levovirin; a protease inhibitor including an NS3 inhibitor, a NS3-4A inhibitor; a helicase inhibitor; a polymerase inhibitor including HCV RNA polymerase and NS5B polymerase inhibitor; gliotoxin; an IRES inhibitor; and antisense oligonucleotide; a thiazolidine derivative; a benzanilide, a ribozyme; another nucleoside, mucleoside prodrug or nucleoside derivative; a 1-amino-alkylcyclohexane; an antioxidant including vitamin E; squalene; amantadine; a bile acid; N-(phosphonoacetyl)-L-aspartic acid; a benzenedicarboxamide; polyadenylic acid; a benzimidazoles; thymosin; a beta tubulin inhibitor; a prophylactic vaccine; an immune modulator, an IMPDH inhibitor, silybin-phosphatidylcholine phytosome; and mycophenolate.

Claim 111 (Withdrawn; Currently Amended): The method of 56, wherein the antivirally effective amount of (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl the nucleoside is administered in combination or alternation with at least one treatment selected from the group consisting of: interferon, including interferon alpha 2a, interferon alpha 2b, a pegylated interferon, interferon beta, interferon gamma, interferon tau and interferon omega; an interleukin, including interleukin 10 and interleukin 12; ribavirin; interferon alpha or pegylated interferon alpha in combination with ribavirin or levovirin; levovirin; a protease inhibitor including an NS3 inhibitor, a NS3-4A inhibitor; a helicase inhibitor; a polymerase inhibitor including HCV RNA polymerase and NS5B polymerase inhibitor; gliotoxin; an IRES inhibitor; and antisense oligonucleotide; a thiazolidine derivative; a benzanilide, a ribozyme; another nucleoside, nucleoside prodrug or nucleoside derivative; a 1-amino-alkylcyclohexane; an antioxidant including vitamin E; squalene; amantadine; a bile acid; N-(phosphonoacetyl)-L-aspartic acid; a benzenedicarboxamide; polyadenylic acid; a benzimidazoles; thymosin; a beta tubulin inhibitor;

a prophylactic vaccine; an immune modulator, an IMPDH inhibitor; silybin-phosphatidylcholine phytosome; and mycophenolate.

Claims 112-113 (Canceled).

Claim 114 (Withdrawn; Currently Amended): The method of 61, wherein the antivirally effective amount of (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl the nucleoside is administered in combination or alternation with at least one treatment selected from the group consisting of: interferon, including interferon alpha 2a, interferon alpha 2b, a pegylated interferon, interferon beta, interferon gamma, interferon tau and interferon omega; an interleukin, including interleukin 10 and interleukin 12; ribavirin; interferon alpha or pegylated interferon alpha in combination with ribavirin or levovirin; levovirin; a protease inhibitor including an NS3 inhibitor, a NS3-4A inhibitor; a helicase inhibitor; a polymerase inhibitor including HCV RNA polymerase and NS5B polymerase inhibitor; gliotoxin; an IRES inhibitor; and antisense oligonucleotide; a thiazolidine derivative; a benzanilide, a ribozyme; another nucleoside, nucleoside prodrug or nucleoside derivative; a 1-amino-alkylcyclohexane; an antioxidant including vitamin E; squalene; amantadine; a bile acid; N-(phosphonoacetyl)-L-aspartic acid; a benzenedicarboxamide; polyadenylic acid; a benzimidazoles; thymosin; a beta tubulin inhibitor; a prophylactic vaccine; an immune modulator, an IMPDH inhibitor; silybin-phosphatidylcholine phytosome; and mycophenolate.

Claim 115 (Withdrawn; Currently Amended): The method of 71, wherein the antivirally effective amount of (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl the nucleoside is administered in combination or alternation with at least one treatment selected from the group consisting of: interferon, including interferon alpha 2a, interferon alpha 2b, a pegylated interferon, interferon beta, interferon gamma, interferon tau and interferon omega; an interleukin, including interleukin 10 and interleukin 12; ribavirin; interferon alpha or pegylated interferon alpha in combination with ribavirin or levovirin; levovirin; a protease inhibitor including an NS3

inhibitor, a NS3-4A inhibitor; a helicase inhibitor; a polymerase inhibitor including HCV RNA polymerase and NS5B polymerase inhibitor; gliotoxin; an IRES inhibitor; and antisense oligonucleotide; a thiazolidine derivative; a benzanilide, a ribozyme; another nucleoside, nucleoside prodrug or nucleoside derivative; a 1-amino-alkylcyclohexane; an antioxidant including vitamin E; squalene; amantadine; a bile acid; N-(phosphonoacetyl)-L-aspartic acid; a benzenedicarboxamide; polyadenylic acid; a benzimidazoles; thymosin; a beta tubulin inhibitor; a prophylactic vaccine; an immune modulator, an IMPDH inhibitor; silybin-phosphatidylcholine phytosome; and mycophenolate.

Claims 116-117 (Cancled).

Claim 118 (Withdrawn; Currently Amended): The method of 76, wherein the antivirally effective amount of (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl the nucleoside is administered in combination or alternation with at least one treatment selected from the group consisting of: interferon, including interferon alpha 2a, interferon alpha 2b, a pegylated interferon, interferon beta, interferon gamma, interferon tau and interferon omega; an interleukin, including interleukin 10 and interleukin 12; ribavirin; interferon alpha or pegylated interferon alpha in combination with ribavirin or levovirin; levovirin; a protease inhibitor including an NS3 inhibitor, a NS3-4A inhibitor; a helicase inhibitor; a polymerase inhibitor including HCV RNA polymerase and NS5B polymerase inhibitor; gliotoxin; an IRES inhibitor; and antisense oligonucleotide; a thiazolidine derivative; a benzanilide, a ribozyme; another nucleoside, nucleoside prodrug or nucleoside derivative; a 1-amino-alkylcyclohexane; an antioxidant including vitamin E; squalene; amantadine; a bile acid; N-(phosphonoacetyl)-L-aspartic acid; a benzenedicarboxamide; polyadenylic acid; a benzimidazoles; thymosin; a beta tubulin inhibitor; a prophylactic vaccine; an immune modulator, an IMPDH inhibitor; silybin-phosphatidylcholine phytosome; and mycophenolate.

Claim 119 (Withdrawn; Currently Amended): The method of 86, wherein the antivirally effective amount of (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl the nucleoside is administered in combination or alternation with at least one treatment selected from the group consisting of: interferon, including interferon alpha 2a, interferon alpha 2b, a pegylated interferon, interferon beta, interferon gamma, interferon tau and interferon omega; an interleukin, including interleukin 10 and interleukin 12; ribavirin; interferon alpha or pegylated interferon alpha in combination with ribavirin or levovirin; levovirin; a protease inhibitor including an NS3 inhibitor, a NS3-4A inhibitor; a helicase inhibitor; a polymerase inhibitor including HCV RNA polymerase and NS5B polymerase inhibitor; gliotoxin; an IRES inhibitor; and antisense oligonucleotide; a thiazolidine derivative; a benzanilide, a ribozyme; another nucleoside, nucleoside prodrug or nucleoside derivative; a 1-amino-alkylcyclohexane; an antioxidant including vitamin E; squalene; amantadine; a bile acid; N-(phosphonoacetyl)-L-aspartic acid; a benzenedicarboxamide; polyadenylic acid; a benzimidazoles; thymosin; a beta tubulin inhibitor; a prophylactic vaccine; an immune modulator, an IMPDH inhibitor; silybin-phosphatidylcholine phytosome; and mycophenolate.

Claims 120-121 (Canceled).

Claim 122 (Withdrawn; Currently Amended): The method of 91, wherein the antivirally effective amount of (2/R)-2'-deoxy-2'-fluoro-2'-C-methyl the nucleoside is administered in combination or alternation with at least one treatment selected from the group consisting of: interferon, including interferon alpha 2a, interferon alpha 2b, a pegylated interferon, interferon beta, interferon gamma, interferon tau and interferon omega; an interleukin, including interleukin 10 and interleukin 12; ribavirin; interferon alpha or pegylated interferon alpha in combination with ribavirin or levovirin; levovirin; a protease inhibitor including an NS3 inhibitor, a NS3-4A inhibitor; a helicase inhibitor, a polymerase inhibitor including HCV RNA polymerase and NS5B polymerase inhibitor; gliotoxin; an IRES inhibitor, and antisense oligonucleotide; a thiazolidine derivative; a benzanilide, a ribozyme; another nucleoside, nucleoside prodrug or nucleoside derivative; a 1-amino-alkylcyclohexane; an antioxidant

including vitamin E; squalene; amantadine; a bile acid; N-(phosphonoacetyl)-L-aspartic acid; a benzenedicarboxamide; polyadenylic acid; a benzimidazoles; thymosin; a beta tubulin inhibitor; a prophylactic vaccine; an immune modulator, an IMPDH inhibitor; silybin-phosphatidylcholine phytosome; and mycophenolate.

Claim 123 (Withdrawn; Currently Amended): The method of 101, wherein the antivirally effective amount of (2^tR)-2^t-deoxy-2^t-fluoro-2^t-C-methyl the nucleoside is administered in combination or alternation with at least one treatment selected from the group consisting of: interferon, including interferon alpha 2a, interferon alpha 2b, a pegylated interferon, including interferon gamma, interferon tau and interferon omega; an interleukin, including interleukin 10 and interleukin 12; ribavirin; interferon alpha or pegylated interferon alpha in combination with ribavirin or levovirin; levovirin; a protease inhibitor including an NS3 inhibitor, a NS3-4A inhibitor; a helicase inhibitor; a polymerase inhibitor including HCV RNA polymerase and NS5B polymerase inhibitor; gliotoxin; an IRES inhibitor; and antisense oligonucleotide; a thiazolidine derivative; a benzanilide, a ribozyme; another nucleoside, nucleoside prodrug or nucleoside derivative; a 1-amino-alkylcyclohexane; an antioxidant including vitamin E; squalene; amantadine; a bile acid; N-(phosphonoacetyl)-L-aspartic acid; a benzenedicarboxamide; polyadenylic acid; a benzimidazoles; thymosin; a beta tubulin inhibitor; a prophylactic vaccine; an immune modulator, an IMPDH inhibitor, silybin-phosphatidylcholine phytosome; and mycophenolate.

Claims 124-125 (Canceled).

Claim 126 (Withdrawn; Currently Amended). A method of synthesizing <u>the nucleoside</u> of claim 11, which comprises a (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl-nucleoside (β-D or β-L) comprising glycosylation of a nucleobase with an intermediate

glycosylating the pyrimidine with a compound having the following structure:

wherein R is lower alkyl, acyl, benzoyl, or mesyl; and Pg is any acceptable protecting group consisting of but not limited to C(O)-alkyl, C(O)Ph, C(O)aryl, CH₃, CH₂-alkyl, CH₂-alkenyl, CH₂Ph, CH₂-aryl, CH₂O-alkyl, CH₂O-aryl, SO₂-alkyl, SO₂-aryl, *tert*-butyldimethylsilyl, *tert*-butyldiphenylsilyl, or both Pg's may come together to for a 1,3-(1,1,3,3-tetraisopropyldisiloxanylidene).

Claim 127 (Withdrawn; Currently Amended): A method of synthesizing the nucleoside of claim 1, which comprises a (2'R)-2'-deoxy-2'-fluoro-2'-('-methyl-nucleoside (β-D-or-β-L) comprising selective deprotection of either Pg in an intermediate of the

selectively deprotecting the 3'-OPg or the 5'-OPg of a compound having the following structure:

wherein, X is O, S, CH₂, Se, NH, N-alkyl, CHW (R, S, or racemic), C(W)₂, wherein W is F, Cl, Br, or I; and Pg is independently any pharmaceutically acceptable protecting group selected from the group consisting of C(O)-alkyl, C(O)Ph, C(O)aryl, CH₃, CH₂-alkyl, CH₂-alkenyl, CH₂-Ph, CH₂-aryl, CH₂O-alkyl, CH₂O-aryl, SO₂-alkyl, SO₂-aryl, tert-butyldimethylsilyl, tert-butyldiphenylsilyl, or both Pg's may come together to for a 1,3-(1,1,3,3-tetraisopropyldisiloxanylidene).

Claim 128 (Withdrawn): An intermediate in the synthesis of a (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β -D or β -L), wherein the intermediate is of the structure:

wherein R is lower alkyl, acyl, benzoyl, or mesyl; and Pg is any acceptable protecting group consisting of but not limited to C(O)-alkyl, C(O)Ph, C(O)aryl, CH₃, CH₂-alkyl, CH₂-alkenyl, CH₂Ph, CH₂-aryl, CH₂O-alkyl, CH₂O-aryl, SO₂-alkyl, SO₂-aryl, *tert*-butyldimethylsilyl, *tert*-butyldiphenylsilyl, or both Pg's may come together to for a 1,3-(1,1,3,3-tetraisopropyldisiloxanylidene).

Claim 129 (Withdrawn): An intermediate in the synthesis of a (2'R)-2'-deoxy-2'-fluoro-2'-C-methyl nucleoside (β -D or β -L), wherein the intermediate is of the structure:

wherein, X is O, S, CH₂, Se, NH, N-alkyl, CHW (R, S, or racemic), C(W)₂, wherein W is F, Cl, Br, or I; and Pg is independently any pharmaceutically acceptable protecting group selected from the group consisting of C(O)-alkyl, C(O)Ph, C(O)aryl, CH₃, CH₂-alkyl, CH₂-alkenyl, CH₂Ph, CH₂-aryl, CH₂O-alkyl, CH₂O-aryl, SO₂-alkyl, SO₂-aryl, tert-butyldimethylsilyl, tert-butyldiphenylsilyl, or both Pg's may come together to for a 1,3-(1,1,3,3-tetraisopropyldisiloxanylidene).